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ABSTRACT

This manual describes programs to educate seventh grade "differentiated" students in language arts and mathematics. Differentiated students are defined as those who are about two years behind their peers in a given subject; both academic performance and behavior characteristics are factors in students being encouraged to take the differentiated option in addition to their regular classes. Following a discussion of administrative considerations in implementing the Differentiated Support Option (DSO) program, two teacher-developed handbooks are presented: one on language arts, and the other on mathematics. These handbooks are the teachers' reports of how they conceptualized and used the four support options: (1) re-teaching selected concepts and skills from regular classwork based on student need; (2) giving homework support; (3) emphasizing work habits and study skills; and (4) assessing student need for basic skills and remedial work. Each handbook contains sections describing the educational and community setting, the philosophy of the DSO, and the mechanisms involved in creating the DSO approach while incorporating the four options. Instructional procedures and methods are suggested, sample activities are illustrated, and the expectations of those working with the program are discussed. Each handbook ends with an evaluation of the program from the teacher's perspective and appendices of handouts and exercises. (FG)

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THE DIFFERENTIATED SUPPORT OPTION HANDBOOK

GRADE SEVEN

Edited by

SOL E. SIGURDSON

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SP 019 679

THE DIFFERENTIATED SUPPORT OPTION

in

LANGUAGE ARTS

&

MATHEMATICS

GRADE 7

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THE DIFFERENTIATED SUPPORT OPTION PROGRAM

in

LANGUAGE ARTS

and

MATHEMATICS

GRADE 7

The "differentiated" student is loosely defined as being 2 years behind in his work in language arts (or mathematics). In almost all junior high schools finding ways to help this student causes administrative problems. In the United States federal funding usually requires special separate programs be set up for these students. Even our provincial funding for these students is often tied to special separate programs. The separate arrangement makes managing and accounting for the funding easier but does "separate treatment" for these differentiated students result in a better treatment? The "differentiated support option" program was set up to challenge the concept of separate treatment. It consists of setting up a program which supports students in functioning in the regular program. The differentiated student under this program receives instruction in his regular language arts (or mathematics) class plus two additional hours in the language arts (or mathematics) support option. (A given student could be in both support option classes.) The word "option" in the title "differentiated support option" derives from the fact that 1) students do opt for this course even though some are strongly counselled in this direction and also that 2) the program is timetabled into the "option slot" in the school day). This latter fact means that students "opting" for the program give up an option choice.

The effectiveness of this program is reported elsewhere. The present manual has the purpose of explaining how the differentiated support option (DSO) operates. Three points of instructional theory will be raised because they seem central to the argument for the DSO. First, the DSO allows the regular classes to be heterogeneously grouped for all classes. The argument of heterogeneous over homogeneous grouping is beyond the scope of this paper. Good and Brophy present numerous perspectives on it. Secondly, advocates of mastery learning have argued that time is an important variable in raising achievement levels. The DSO increases the time spent on language arts by 2 periods per week. This represents an increase of 30 to 40 percent. Thirdly, traditionally mathematics, and even language arts has been conceptualized as a linear learning process where there is a definite order (even hierarchy) in which concepts and skills can be learned. The DSO challenges this notion and is based on the theory that learning of concepts and skills at any level is supportive of and supported by learning at other levels. These three points of instructional theory are clearly open to debate but it seems inappropriate to hold up practical programs until we have "confirmed" their theoretical bases.

THE DIFFERENTIATED STUDENT

Characteristics of slow learners can only be generally defined. Things like attention span, history of failure, expectation of failure, poor work habits, and need for explicit direction are among the more commonly used. Definitions in terms of intelligence quotient, reading scores and the like are equally unsatisfactory. Within the current program, we include approximately the bottom ten percent in performance of all grade seven students in the "differentiated" category. In general we have tried to include students who fall into the bottom ten-percent due to their being disruptive, having authority figure complexes and having other personality quirks which makes school life difficult for them. Teachers in the program like to think there should be a place for someone who still wants to learn but needs extra help. Obviously, especially because parental consent was sought before placing any student in the program, we do indeed have quite a variety of defining characteristics. We are talking about most students in the bottom ten percent of grade seven.

DIFFERENTIATED SUPPORT OPTION ALTERNATIVES

There are basically four types of support which a "support option" can give to a differentiated student.

1. Selected concepts and skills from the regular curriculum re-taught and given extended practice. The selection would normally be based on student need. In this way the DSO program would parallel the regular course.
2. Homework support. This alternative assumes students need an environment which encourages the completion of homework.
3. How to study skills. This program would emphasize work habits, giving concrete suggestions actually worked out in the option.
4. Basic skills assessment and remediation. This approach assumes that the students are lacking fundamental operations and that improvement in this area will help students function in the regular program.

Teachers operating the DSO program choose from all of these alternatives. They all felt the "support" function of the program to be fundamental so decisions as to alternative approaches were made so as to serve the notion of "support".

THE PROGRAM

Within the theory presented here and the four specific approaches, teachers were given complete freedom to develop their own programs which included identification of students, determining criteria for moving students in and out of programs, setting up patterns of communication with teachers

of the regular curriculum, developing activities and evaluating students. The two handbooks which follow are the teachers' reports of how they conceptualized and operated their differentiated support options. A general format has been followed in making their reports. Two teachers worked in each of the DSO programs.

FORMAT OF THE HANDBOOK

1. Setting - describing the community, the school, their students, and the type of student difficulties.
2. DSO philosophy - specifying their interpretation of the program philosophy.
3. Mechanism - including how students were chosen, transferred in and out, and communication with the regular classroom teacher. A remedial language arts (and mathematics) option was scheduled at the same time which allowed much more flexibility in putting students in and out of the DSO.
4. Instructional procedures - including both general methodology considerations as well as specific approaches and variations between two teachers.
5. Sample activities - specific handouts are illustrated.
6. Expectations - of the students in the program, of the regular classroom teacher, of the DSO teachers, and of the administration.
7. Evaluation - from the teacher's personal perspective. A formal evaluation of the DSO and the total program appears elsewhere.

These handbooks were written by the teachers offering the programs. We have tried to include the type of practical information that will be helpful to a teacher interested in implementing a similar program.

ADMINISTRATIVE CONSIDERATIONS FOR THE DSO

Our previous method of accommodating differentiated students was to assign these students to three classes in the regular program. The fifteen or so students would be assigned five to each class. These three regular classes would be scheduled at one time so that the fifteen students could be pulled out to form a fourth differentiated class. The same three classes served for mathematics and language arts. This arrangement complicates the timetable. The differentiated support option however places no restriction on the timetable for regular classes. Another advantage of heterogeneous grouping is that it avoids having a few classes being labelled as "slow" classes. In the project being reported upon here, besides having heterogeneous classes, two teachers taught the four academic core subjects for two classes. The total effect of our program was to make the transition from elementary to junior high school a rather easy one.

Teacher selection for the DSO was made from the group of teachers teaching language arts (or mathematics) in the grade seven core. This way, many of the DSO students had the same teacher in the core as in the DSO which, in general, will be desirable. DSO teachers should be encouraged to keep close contact with the appropriate core teacher, especially since a certain portion of the DSO is for the purpose of helping students complete homework.

Perhaps, or even especially with school- based budgeting, the cost of various programs must be considered. Our previous arrangement for the differentiated program cost us seven language arts periods and five mathematics periods totalling 12 periods. Running one section of the DSO cost two language arts and two mathematics periods. If two sections each are to be run this will come to a total of eight periods. which is still cheaper than one section of our previous arrangement. Of course, the bottom line is whether the DSO program is deemed as successful as the previous one.

It seems any administrative arrangement has some trade-off. In this case, the student loses an option since the DSO is offered in the option time slot. As we explained this arrangement in several parent meetings, perhaps because of apathy, parents did not at all object to this loss; they rather appeared to appreciate the "extra" their children were getting. Our differentiated program only involved about 10 percent of the students in grade seven.

Student selection is difficult. Any initial selection will be tentative so it seems imperative that a system which allows students to move in and out of the DSO should be considered. In our case one administrative device proved convenient. That was to schedule a 2-period "remedial option" in language arts (and mathematics) at the same time as the DSO. This allowed more flexibility in moving students in and out of the DSO. Also we had some 2-period options which allowed some students to take 2 periods of DSO in language arts (or mathematics) and another 2-period option in the 4-period option slot. Our initial procedure was to place all potential DSO students in the remedial option and encouraged the teachers to make their assessments within two weeks to finalize the DSO student selection. Even at this, two or three students were moved around during the year with permission from the option teachers so affected.

AN ANALYSIS

The curriculum implementation of the differentiated support option program consisted of allowing experienced teachers to develop their own program in the context of general guidelines discussed in workshops at the beginning of the school year. It seems appropriate to reflect briefly on the programs developed by the teachers. Four general areas will be discussed.

1. Support

Both of the DSO programs, language arts and mathematics stress the concept of supporting the differentiated student in the regular class. The DSO was not perceived as an alternative program . The temptation for the DSO teacher to "do his/her own thing" was strongly resisted. This is not a trivial point. Teachers traditionally have a difficult time working with others but the DSO program will succeed primarily as the DSO teacher understands the core teacher's goals. The teachers in their write-ups stress, for example, that "drill" should only be engaged in as it relates to the progress of the core program. The teacher of the DSO is not engaged basically in setting goals for the differentiated student. He/she is there to engage with the student in a common concern--the student's relating to the core curriculum. There is an obvious danger of the teacher resorting to "test passing" gimmicks. However, the handbooks attest to the student receiving support in many different ways. One core teacher reported a differentiated student not "doing any better" but feeling more confident in the core class.

2. Communication between DSO and core teachers

Both programs mention the difficulty of keeping in touch with core teachers. The language arts teachers, for example, would like to lay the responsibility of communication on the core teachers. If they, the core teachers, are aware of every student's progress then he/she should have an idea of how the 3 or 4 differentiated students in his/her core class can be helped. Both programs, however, indicated that they experienced difficulty in communication. The mathematics teachers felt that the other teachers didn't even understand the program, let alone offer assistance. It might even be said, pessimistically, that any program that has to rely on teacher communication is doomed to failure. It would seem that the DSO can function on limited communication but surely its full potential will not be realized.

Within the block plan, the instructional pattern within which the DSO operated in this project, DSO teachers could have taken students that came from only one teacher other than themselves. They chose not to do so. If, in fact, communication is a major concern, the concern can be substantially reduced under the block plan. A subsequent implementation of this program could test this out.

3. Instruction approaches

Quite the contrary to having a "set curriculum", the DSO seems to thrive on flexibility and variety in daily activities. The concept of "target of opportunity" as responding to "whatever student problems" emerge is a useful one. Only a teacher experienced in the core curriculum could play such a role. The notion of "target of opportunity" interplays nicely with the notion of support and the notion that the DSO, as such, has no unique curriculum; the core curriculum provides

all the direction the DSO needs. The "opportunities" should arise through student identification, through core-teacher identification or through the perceptive diagnosis of DSO teachers. In addition to responding quickly to instructional situations, the DSO teacher has to use variety in his instructional approaches. Clearly students who don't especially like mathematics, for example, might need to be somewhat extrinsically motivated through instructional variation during their 2-period extra instructional time.

4. The Teacher not the Curriculum

Teachers in both DSO programs were not anxious to include student handout materials in their reports. Although there is a variation in this from teacher to teacher, the emphasis is on working with children where they are. The handouts would probably best serve as back-up activities when other "instructional" means of "support" failed. Both programs suggest the teacher-produced puzzle or games could be more adaptable and motivating than a supply of pre-packaged ones. Instructional approaches, teacher awareness, teacher concern and student difficulties seem to be the watchwords in this program. Looking at some of the specific activities, especially in the mathematics program, the reader may be dismayed at the "rule" approach to teaching mathematics. Our only response is that "directness" works. The core teacher would be trying perhaps to provide the conceptual underpinnings but the DSO teachers emphasized method. When a teacher is working so closely with individual students it is difficult to predict what will or will not work.

The teachers' role in "personal communication" with students was emphasized by all DSO teachers. Trust, share time, honesty and self-concept are daily considerations in these classes. The language arts teachers even went so far as to say "Counselling is the prime duty of the DSO teacher." The "support" now becomes psychological as well as cognitive. Of course, "support" extended to developing personal work habits. Teacher's role in the DSO is a different role for classroom teachers and demands special consideration.

A warning

We are not suggesting that these handbooks are the final word on teaching in the DSO. We do hope it gives you some definite ideas of what our experiences have told us. Remember what is described here is not a program unto itself, it is a support system for a highly complex process. Everyone involved in developing this system is encouraged. It remains for others to develop the process so that it can produce even better results. At this stage we are obviously incredibly impressed with the importance the individual teacher, even the individual personality of the teacher, plays in the process, even to the point of thinking that formalizing the process into a curriculum or student handouts does it an injustice. There is a lot that we don't understand about the "school learning of children"; analyzing and thinking about the apparent success of the DSO might give us some more insight into the important and fascinating process.

DIFFERENTIATED SUPPORT OPTION HANDBOOK

LANGUAGE ARTS

By Marilyn Webber
Ed E. Simbalist

LANGUAGE ARTS DIFFERENTIATED SUPPORT OPTION

SETTING

The setting for the DSO pilot project was the Millwoods area of Edmonton. The area is characterized by rapid growth in population, a diverse population in terms of ethnic and socio-economic backgrounds, and a highly mobile population.

Edith Rogers Junior High School was founded six years ago, in 1975. Within two years, the school was filled to capacity and eight portables were required to absorb the overflow. The student population has now stabilized in the region of 600-700 pupils, 100-200 over the design limits of the basic plant. The school can be described as crowded, with resources somewhat strained. The school administration has actively promoted a "student-oriented" approach, which has emphasized extensive extra-curricular activities, a wide range of optional subjects, reliance on counselling and Bureau Team support, and policies and procedures exhibiting humanist rather than institutional concerns. In short, the school has been organized in the full recognition that we have significant problems which must be addressed if any success is to be made in the area.

The diversity of student backgrounds and the mobility of the population has created problems with specific relevance to the school. A significant number of students are immigrants who are still learning the language. The E.S.L. (English as a Second Language) program deals only with the most basic of their language problems, and many do not take the program at all. Others are simply low in their general language and reading skills, possibly through a history of regular moves from school to school as well as intrinsic difficulty in comprehending the basics of the English language. Still others are experiencing emotional problems arising from their home or social backgrounds. All of these areas of difficulty find their way into the school. They find expression in various ways: reticence and self-consciousness in the classroom; frustration which emerges as disturbance or rebellion in the classroom, poor attendance, or a combination of these; and often refusal even to attempt many assignments, do homework, or study outside the school environment.

Such problems clearly require special programs aimed at meeting specific needs of individual students.

PHILOSOPHY OF THE DSO

Both the administration and the language instructors at Edith Rogers feel strongly that the school must provide for individual needs. In this regard, it should be noted that the elementary schools have Resource Rooms and other programs and facilities which address the language deficiencies of students. Similarly, the high schools have several program streams to deal with the varying abilities and skills of students in the use of language.

Previously, we resorted to a fully "differentiated" approach by removing students from the regular language arts and mathematics courses to attend differentiated classes while their classmates were in the regular classes. While some successes were achieved, it seems that this approach merely moved students up to standard levels of achievement. Indeed, most eventually went into trades and services programs at W.P. Wagner and similar schools. There were rarely true "catch-up" situations.

The DSO program was conceived of as a genuine support option designed to assist students with difficulties in their regular language arts course, not as an alternative program. Several periods (2) would be devoted to addressing specific problems arising with lessons, homework, and other activities arising in the regular language arts class, and also to direct remediation of specific areas of weakness detected by the regular L.A. teacher and the DSO teacher. Classes would be kept very small (under 10 students, and as little as 6-7) to facilitate high levels of student-teacher interaction in the DSO.

MECHANISMS: APPLYING THE DSO APPROACH

(1) SELECTION OF STUDENTS

Students were selected for the grade 7 DSO program by determining who were two years or more behind grade placement in skill levels. This was accomplished through several means:

(a) The school administrators met with elementary principals of the feeder schools in the area to explain the DSO program. The elementary principals then met with their Grade 6 teachers and requested that they recommend likely candidates for the DSO. These recommendations were noted on the registration forms forwarded to the feeder schools.

(b) The DSO program was explained in program descriptions sent out to parents of Grade 6 students, and parents were able to request DSO for their children on the registration forms for Grade 7 at Edith Rogers.

(c) With both elementary school recommendations and parent requests as definite "leads" with respect to potential candidates for DSO, the DSO instructors noted such individuals and also tested every Grade 7 student. In L.A., this involved administration of reading tests, classroom teacher observation during the first month of school as they assessed the levels of performance present in their classrooms, perusal of all the cumulative records of new Grade 7 students (with reference to I.Q., Canadian Test of Basic Skills scores, and Grade 6 L.A. marks and comments in report cards).

(d) Most likely candidates were thus distinguished.

A significant number of the students were, in fact registered in the Reading-DSO option from the beginning. Testing at Edith Rogers largely confirmed prior selection by elementary schools and parents, although other students with difficulty were found. A good number of these were students transferring in from schools outside the Millwoods feeder system. There were thus no previous identifying factors to go on. In this regard, it should be noted that the present Grade 6 report cards are notoriously

vague and lacking in any usefulness for determining the real skill levels of students. The "E", "S", or "N" system of grading is not sufficient for our purposes. Also, many cumulative records are forwarded late or not at all from other jurisdictions. An in-school testing program is therefore essential to the successful identification of DSO candidates.

(2) USING OPTIONS

The DSO program was established as a remedial option. This allowed for support in L.A. to be given across Grade 7 without grouping a significant number of potential candidates in several classes, so that differentiated students could attend a Diff. L.A. while their classmates were attending the regular course. Such groupings, while serving the previous L.A. and Math programs, had negative effects on Social and Science classes because the weaker differentiated students were present in large numbers.

The DSO program was conceived as a three-prong attack. Of the 28 Grade 7 students in need of assistance, half were placed in a Remedial Reading program. These were students about 1½-2 years behind in general reading and other skills. The remainder, who were all below the 10th percentile in CTBS and reading tests, were placed in two small-group sections which numbered 6-7 each. These students received intensive personal assistance with ongoing problems in L.A.

By using options, not only was it possible to draw students from across all of the Grade 7 classes, but a definite degree of flexibility was obtained. Students could be moved from the Reading group to one of the DSO groups with ease, and vice versa. Most significant, three teachers could be used at greater economy to give close personal attention to students, where the old differentiated program allowed for only one teacher. This is explained by 3x 2-period classes (total = 6 periods), as opposed to the old 7-period differentiated L.A. Also, the old Diff. L.A. had 12-15 students at best, whereas 28 were serviced by the Reading-DSO classes.

(3) TRANSFERABILITY

The DSO program is highly flexible. As noted, movement between Reading and DSO classes was eminently possible. Movement out of the program into some other option was also easily effected. However, the most important aspect of the whole program is that students were in regular L.A. classes. This means completely unfettered transferability for the student, both within the school (to other homeroom classes, for whatever reason), and to other schools, without the usual problems attending such transfers. The reason for such transferability is quite obvious. The DSO program is not a full L.A. class, but rather a support class. The regular L.A. teacher deals with the general curriculum; the DSO teacher will "teach to specific problems" arising out of the regular classes.

(4) COMMUNICATION BETWEEN CLASSROOM L.A. TEACHERS AND DSO TEACHERS

One of the most important elements in the DSO program that has emerged is the need for regular communication between the classroom L.A. instructors and the teachers conducting the DSO program. In its first year of operation, the potentials of the DSO program were not adequately exploited or pursued by regular L.A. teachers. If the DSO teacher does not chase down the L.A. teachers, little communication or feedback will come from the L.A. classrooms, it seems. Alternatively, we recommend that L.A. teachers be clearly informed and encouraged to send suggestions and clear identifications of problem areas, assignments with which their students are having difficulty, etc., to the DSO teachers.

The DSO is just that, a support option. But it is both unfair and uneconomical in planning and teaching time to expect the DSO teachers to "develop" a totally separate program. Indeed, it is contrary to the very purpose for which DSO was established. Nor can the DSO teacher be sure that his students are bringing problems to the class. The work-reticence of such students must be recognized. If DSO teachers, who may have students from four or five classrooms, are expected to seek out the regular L.A. teachers on a regular basis just to find out what is happening in their classes, the program will be only a limited success.

INSTRUCTIONAL APPROACHES

The DSO program in L.A. developed into a "target of opportunity" approach to student problems. In short, it was not a fully "coherent" curriculum in the usual sense. Rather, it involved a "no frills" selection of specific problems and concepts which arose in the regular L.A. program to provide direct assistance to the differentiated students. This was the approach selected from the beginning by both DSO instructors, in the understanding that this was what was wanted and needed.

The "target of opportunity" approach had several obvious advantages. First, it provided immediate response to whatever student problems emerged at a given moment. The DSO student is characterized by his need to find out NOW, or he will forget or simply drop the matter and not bring it up again. Secondly, direct response to problems in the regular class was part of the objective, and an unstructured approach (from the teacher's point of view; never from the students' perspective) is essential to meet this requirement. In short, the DSO teacher must be prepared to teach a vast range of "instant mini-lessons" on just about any aspect of the regular L.A. program--without the usual preparation which many teachers require to do the job. That means that the DSO instructor must be well-grounded in Language Arts, with instructional skills, over-all knowledge, and a good stock of teaching materials to "wing it" in the direction required at the moment by the students.

This exceedingly difficult task would be much eased if the regular L.A. teachers kept the DSO teachers informed of what they were doing in their classes. That way, the DSO teacher could prepare some materials beforehand, avoiding duplication of regular L.A. activities and exercises, while reinforcing the L.A.

program at that point. It would also provide for some preparation for the inevitable questions about the L.A. classes which arise in the DSO periods. Such close-sequencing is perhaps most attractive, but it requires continual co-ordination and feedback.

In the absence of close-sequencing and regular communication, the DSO teacher is driven completely onto his own resources. As long as students bring problems into class, the time can be used constructively in support of the regular L.A. program. If, for some reason, the problems stop coming for a time (an occurence which develops on a maddeningly irregular and unpredictable basis) the DSO instructor must have prepared materials and lessons available on selected basic concepts and skills drawn from the regular L.A. program for remediation and additional practice. This facet of the DSO program requires that the DSO instructor be very quickly appraised of the areas of definite weakness which his students possess. There is nothing more "boring" to DSO students than exercises with little or no "point" to them. That is, if they are not having trouble with the work, they will soon question the whole activity and shut down.

This second aspect of DSO might be termed as basic skills assessment and remediation independent of the regular L.A. classroom. The approach has the virtue of being highly individualized, especially in a class of 6-7 students. Different exercises can be given to students so that one is working on spelling while another is dealing with verb identification, etc. Only a small class size makes such an approach a manageable one. Problems exist here in that, while instant help and feedback on student performance are possible, the DSO instructor must expend considerable time in diagnosis and gathering together of relevant materials. Attention must be paid to the groupings of skill weaknesses which emerge in even such a small number of students.

To sum up, then, the DSO teacher must be able to teach extemporaneously on any L.A. topic which arises in his class, attempt to win the full co-operation of the regular L.A. teachers in maintaining ongoing communications, provide a wide variety of basic remedial materials for support purposes and also for general remediation, and must diagnose the individual problems in the DSO group to permit the most effective <u>student</u> use of remediation time.

In two periods per week, that is a very "heavy" prescription indeed!

DSO ACTIVITIES

Included in the Appendix at the end of this handbook are sample exercises and student activities used in the DSO-7 program at Edith Rogers. More than one activity is recommended for each class period. Many DSO students have a short attention span. It is recommended that some oral discussion and some reading activity be conducted in each class period. Exercises and assignments themselves vary in level of difficulty and should be chosen according to the needs of the student.

1. <u>Writing</u>: (Appendix, No. 1) Developing writing skills is one of the goals of the DSO program. One skill is careful handwriting. Each student is given an exercise book (ruled for capital and larger and smaller lower

case letter). About six letters can be introduced each day. Students should fill one ruled page for each letter. Numbers can also be practised in this manner. For those having particular difficulty with handwriting, extra sheets may be distributed for home practice. Calligraphy is a popular option at Edith Rogers. We believe that such an option reinforced the emphasis placed on developing a neat hand in the DSO program. Time: 8-10 lessons.

Writing also involves assisting students with assignments given in the core L.A. program. In such instances, time can be devoted to dealing with the specific problems the students are having with paragraphs, book reports, etc. In effect, such time is spent in much the same way as the core L.A. teacher would during the composition period, only the DSO instructor has far fewer students and can devote much more attention to each student. The success of this aspect of DSO is directly related to the awareness the instructor has of ongoing activities in the core L.A. classes. With some coordination of effort, DSO can strongly support the core program's development of sentence and paragraphing skills. Such activities are also directly related to the core program in the student's mind and are not separate and seemingly "irrelevant" make-work exercises.

2. Dictionary Skills: (Appendix, No. 2) The DSO program can parallel the core L.A. Dictionary unit to reinforce student understanding of how to use the dictionary proficiently as a useful tool. Work sheets were thus provided for:

   (a) prefixes
   (b) suffixes
   (c) homonyms, synonyms, and antonyms
   (d) cross-word puzzles and word games (vocabulary)
   (e) "timed" word searches in the dictionary

   The time required for a dictionary "unit" can vary, depending on the group of students. Generally, 8 to 10 lessons seems standard.

3. Study Skills: Many DSO students have little or no idea of how to study. It is therefore recommended that a "How to Study" unit be done early in the year to enable the students to take advantage of proper study procedures and to develop efficient and regular study habits as soon as possible. We feel that the booklet entitled How to Study*, is an excellent student handbook. Specific lessons included the following areas and required 6 to 8 lessons:

   (a) Notetaking: Students learn paraphrasing skills in oral and reading situations.
   (b) Outlining: (Appendix, No. 3) Students learn the paragraph-to-outline and outline-to-paragraph processes, along with the rules to follow in outlining.
   (c) Reviewing: (Appendix, No. 4) Such activities as spelling bees and vocabulary drills are used, along with oral discussion of actual problem areas experienced by students. This leads into many aspects of the "How to Study" booklet, which presents methods of effective learning.

* Channing L. Bete Co., South Deerfield, MA, 1981.

4. Creative Writing: (Appendix,No. 5) Again, to support activities ongoing in the core L.A. program, the DSO class can engage in a wide variety of basic sentence drills and actual writing assignments. About 10 to 15 lessons can be devoted to creative writing skills development. Where possible, attention should be given to supplementing core L.A. exercises and assignments with additional help and writing time. Some of the DSO writing activities are:

   (a) Reviewing kinds of sentences, with examples and exercises.
   (b) Giving and receiving instructions.
   (c) Writing a description for such things as a "lost-and-found" item for a newspaper, a favourite Christmas or birthday present, etc.
   (d) Writing a poem to explain or describe a picture. The cinquain or syllable poem often succeeds well here, as they are outwardly simple, "formula" poems which do not intimidate DSO students.
   (e) Composing test questions to be given to each other.
   (f) Understanding short stories, including rewriting a story from another point of view or writing an ending for a story like "Still Stands the House."
   (g) Book reporting, which largely turns on supplementing the core L.A. program's efforts in this direction by assisting students with specific assignments. This may be tied in with oral book "reports" if the group's nature lends itself to ready acceptance of such an activity. (Some groups are not "pleased" by being put on the spot as a reporter, or with being subjected to them if they are "boring." Teacher discretion is advised here.)

5. Reading Comprehension: In order to develop student reading and understanding, timed readings may be used. The SRA Kit is an easily obtainable source for such activities. The number of lessons devoted to comprehension can vary, depending upon the reading levels of the students.

6. Interest Centre: Development of the DSO student's desire to read is an important part of the program. Free reading time in the classroom or in a library setting should be provided. An "Interest Centre" may be developed for classroom use, with as large a variety of interesting pamphlets and magazines as possible to encourage student browsing when they are finished with their work. Student work could also be posted here. Library "browsing" time can also be allocated to encourage students to seek free reading books, with the teacher and librarian actively assisting in the selection of a "good book" (a task which is often harder for DSO students than one might think). The "Interest Centre" is also a moment in time when oral discussions can be initiated on such topics as upcoming events in the school, school policies, how marks are arrived at for report cards, and a host of other matters which do concern DSO students. They want to discuss such things, but rarely are they given the opportunity to do so in core classes, or else they are reticent to engage in discussions in front of large groups. The time devoted to "Interest Centre" activities cannot be set definitively, but at least 10-15 "lessons" should be set aside during the course of the year. Also, browsing after work is more or less ongoing in any period in which students finish their work early. (That reduces the chance of any "trouble" developing from boredom.)

These are only a few of the activities that can be fitted into a DSO program. Teachers should have such lessons prepared beforehand for use whenever specific core L.A. problems have not surfaced for immediate treatment and remediation. Indeed, the key word is immediacy of response to student needs. Many "emergencies" arise in the lives of DSO students which cannot really be put off. By having a set of planned activities on hand, the teacher can constructively occupy the time of some students, while dealing with core subject problems that come into the class for help "right now."

EXPECTATIONS FOR THE DSO PROGRAM

How the teachers, students, and parents involved in a DSO program view the purpose and performance of the over-all activity will have a considerable bearing on the program's success or failure.

Teacher Expectations: Teachers of DSO should be prepared to engage in very close personal interaction with their students. DSO students perform for people they like/admire/respect and particularly trust. It is our experience that many DSO students do not relate to "authority figure" modes of teaching which emphasize the formal teacher-student roles. An air of informality and openness must be perceived in the teacher, though discipline must be maintained as well, if students are to feel it is safe to confide both academic and personal problems to the DSO teacher. We discovered that, once student trust was won, a good part of our role in DSO was that of counsellor--the adult who knows and who will give good advice rather than "lectures." Counselling is, in our opinion, the prime duty of the DSO teacher. Student morale and self-respect must be carefully built up and reinforced throughout the year to encourage continued effort. Once that bond of trust is established, it must be maintained if the teacher is to provide effective assistance; for such trust is often fragile and will be withdrawn when a student feels unfairly treated or ignored. Indeed, ignoring students is a sure way to failure. The teacher must be prepared to respond instantly to immediately felt needs and concerns of students. DSO students have relatively low staying power if they are not given immediate feedback. They often cannot understand that there might be a set of priorities other than their own.

We feel that teachers should understand the situation they are entering before they ever do enter a DSO classroom. Demands for their time, attention, and concern will typically be very demanding. DSO students will, as they emerge from their shells in the small group environment, sometimes compete with each other for exclusive teacher attention. It is almost as if they are engaging in a form of "binge" once they discover that a teacher can be brought to pay close attention to them for a change. A DSO teacher must be experienced and discerning, so that he can direct the entire class without his time being occupied with coping with incessent demands for attention-for-attention's-sake. He must also realize that student needs must be carefully balanced with his planned lessons, and that requires split-second decisions on what is really important right now!

Student Expectations: Most DSO students enter their first class with a mixture of expectant eagerness because they have been promised "help" with their problem subject, and outright trepidation because they are in a "dumb" class. That "dumb" label had better be dispelled by the DSO teacher fast. Part of the very beginning of the program should be spent in open discussions of what the students feel they need, and of what the teacher is prepared to do to help. ONCE THE STUDENTS HAVE A CLEAR IDEA THAT DSO is there to give them direct support, without labels and conditions, they will begin to "open up" and take advantage of the opportunities for academic help and general counselling. Some student responses to the 1980-81 pilot program were:

"I like this class. We do 'fun' things!"

"I finally learned how to do an outline."

"Word games were the best."

"I liked 20-questions. I learned to guess real good (sic)."

"Reading's fun. If you have a good book. The teacher and librarian help me find good stuff to read."

"It helped us with our language homework."

"That dictionary junk wasn't much fun. But I liked reading magazines and doing crossword puzzles." (Italics ours.)

"Discussing things is fun. We should do more of it."

"You can talk about all kinds of things in this class."

"Going to MacDonald's was neat!" (Response to a bit of "bribery" for doing well in a series of hard-driving spelling drills.)

"Reading comics was neat--even if we had to do work on it afterwards."

"Homework is important to you."

"We get to read outside the portable when the weather's nice."

"It helps you learn even if you don't need it."

"Writing probably helped us get better marks." (Many parents made favourable comment on this aspect of DSO. They seemed relieved that a subject, seemingly forgotten in the last few years was being re-introduced.)

"It made me more neat."

Such responses indicate the general feeling of satisfaction and being at ease in the DSO program. Students tended to find that they were receiving something important and good from the course. Many disliked some activities, but there were rarely instances in which everything was "boring" or "stupid." Most important, students had a much more positive view of themselves and their relation to school.

Parent Expectations: One aspect of the DSO program, continued from our previous "Differentiated L.A." program, was a parent-teacher meeting early in the school year. There, the principal explained the general aims of the

course and introduced the teachers to the parents. Parent concern and involvement was invited, and every effort was made to encourage parents to contact the school about any problems they had detected or questions they had.

Questionnaires sent home indicated that all of the parents would recommend that we continue the DSO. Some reported that their children's marks had improved. When there was a drop in marks or no change, they still felt that the students were more at ease with their core subjects. We are confident that this was the result of our spending more time with core subject homework assignments and on drill. Clearly, parents are themselves more at ease when they know something is being done for their children to increase their chances at success.

EVALUATION OF THE DSO PROGRAM

First of all some general observations are in order. In both of the DSO sections, students were never late for class. They knew if they got there first, they individually could ask for help in specific areas of difficulty or simply engage in "visiting" with the teacher and talking about the latest "news" or "neat" thing that had caught their attention. If they were about to have a spelling quiz, they would arrive early to drill on those particular words. Very rarely, someone would arrive without a pencil and paper, but exceptions were uncommon enough to be remarkable. If nothing had been mentioned about what the next class would be about, they would arrive expectantly, bombarding the teacher with queries about what they would be doing today. Any "hesitation" on the part of the teacher would be met with demands for "word games," "cross-words," "20-Questions," or whatever was the favourite activity of the particular student. If the teacher was careful to have a supply of materials to draw upon at any time, a "game" could be made of "deciding" which student request would be followed up in class. That sort of input from the students made them generally happy with the actually planned set of activities in the teacher's arsenal. If anyone was disappointed, he could easily be reassured that next time he'd have a chance to do cryptographs or whatever was his favourite activity.

Several of the DSO students achieved considerable success in the core L.A. classes and passed with high "C" standings! Many were not so successful, but general improvement or at least a "holding action" was the rule. Several students had attitudes that left much to be desired. They did not cooperate and refused to take interest in activities. These students also showed no improvement in their marks from the first term to the last. One student, doing well in DSO for most of the year, was experiencing some "social" difficulties with her peers and also decided to "relax" at the end of May, despite warnings of the possibly dire consequences of such an attitude from both her DSO instructor and several students in her DSO class. She failed.

This all underscores the importance of a good student attitude toward themselves and toward school. All the assistance and personal attention in the world will not help the student unprepared to help himself.

We have come to the following conclusions and make the following recommendations for any DSO program.

1. Very close interaction with students is essential to foster their interest and to improve their self-image.

2. Response to the immediate needs and problems of students is vital and may have to override planned lessons. In this regard,

3. Teachers of DSO should have a reasonable amount of experience so that they can accurately "read" their students and manage the conduct of their classrooms without interrupting either the lessons or the students' interest development (which may be strongly at cross-purposes). Also, the teacher should be very well grounded in language arts. This means both academic preparation and experience-wise, for the teacher must be prepared to answer any question that comes up (without having to fumble through a text for the answer), and must be conversant with the current L.A. core program. Further, experienced teachers have tended to build up a stock of exercises and assignments and games which they know are effective in building both skill and interest in students. They will thus have an immediate supply of activities materials on hand.

4. Teachers of DSO must be person-oriented rather than role-oriented individuals to achieve consistently high levels of success with DSO students.

5. Teachers of DSO must possess a greater level of skill in diagnostic procedures than is presently the rule. Inservices are clearly needed for DSO teachers to acquaint them with the diagnostic instruments that will answer the specific questions they have about areas of student weakness. This is a lot more than merely administering a general Reading Comprehension test--which tells the teacher only that "Johnny indeed has a reading problem and is several levels below grade placement." What are the problem areas, exactly? We spent half a year simply arriving at an assessment of where the "holes" were. This is inefficient. Adequate support must be given DSO teachers in the area of diagnosis--skill in administering and evaluating tests, and assistance in obtaining desired testing instruments without "hassles" and delays.

6. There MUST be coordination of DSO activities with core L.A. programs. The DSO cannot give maximum support to the student in the regular L.A. courses if the teacher is left isolated by the core teacher and is not informed of ongoing activities. To ask the DSO teacher to "look up" core teachers on a regular basis just to find out what is going on is too much to ask. Communication (via the staff mailboxes at least) should be initiated by core teachers. Some meetings should be scheduled from time to time as well to bring DSO and core teachers into closer contact.

7. The DSO teachers can serve a valuable function, if they have adequate diagnostic capabilities, in informing core teachers of the problems that DSO students are experiencing in their regular classes. With an opportunity to observe students closely and to enter into much closer relationships with them, the DSO teacher can ease the lot of both the core teacher and the DSO student in his class.

8. Finally, DSO students themselves should be children with problems in their core subjects, but who are also concerned about improving their performance. Students with severe emotional problems or evidencing discipline/anti-social problems are NOT good DSO candidates. Such students are proper subjects for referral to the Bureau Team for a professional assessment and recommendation for action; they cannot be "dumped" into a DSO program in some vague hope that maybe the problem will go away. DSO is a positive place for students to rebuild a happier view of themselves and their time in school; to ask them to cope with severe problem children is unfair and irresponsible.

In summation, we feel that the teacher role in DSO is that of diagnostician, remedial tutor, and counsellor for both the student and the core subject teacher. These functions are essential to the core-assist goal of DSO. Also, we feel that parent understanding, acceptance, and active support of the student and DSO aims must be promoted. For our part, we have enjoyed what we are doing. The students liked it, too, and let us know they did on many occasions. Growth in skills and self-concept was observed in most cases, with little or no alienation from the class and the people in it. This is exactly what we were looking for.

A P P E N D I X

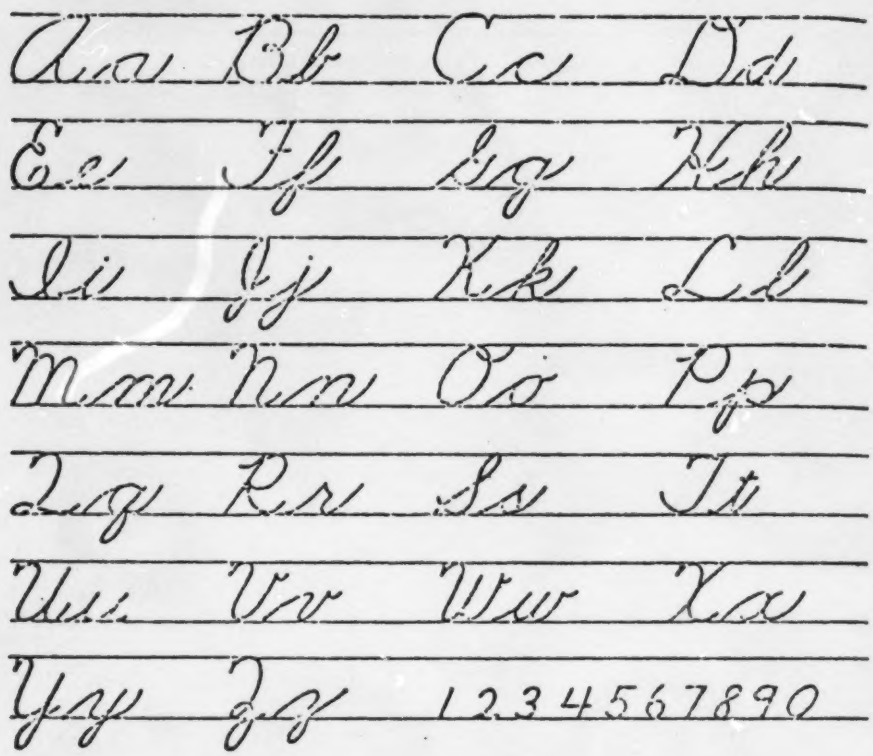
This appendix involves student handouts for specific activities mentioned in the DSO Activities.

(These are only representative samples of activities.)

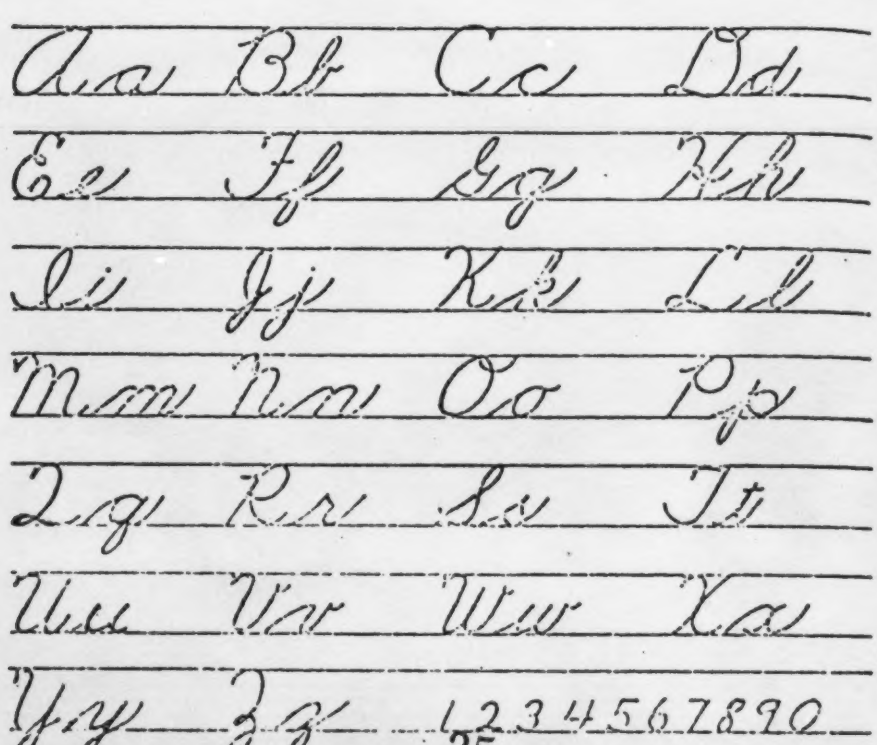
Contents:

1. Writing Exercises
2. Dictionary Skills
3. Outlining
4. General L.A. (Grammar Skills)
5. Creative Writing

HANDWRITING MODELS



HANDWRITING MODELS



2. Dictionary Skills

SYNONYMS SAY IT BETTER

Building your vocabulary means more than just learning difficult words. It also means discovering the little differences between words you already know that have similar meanings. These words with similar meanings are called "synonyms". Once you know how to select synonyms you can use them to build your vocabulary and also improve your writing. By choosing synonyms, you can avoid overworking some words - that is, using them too much. You can also put down your ideas without using an unnecessary number of words. What you write will be clear, exact, and interesting to read. The exercises below will help you to learn some synonyms and to choose words that are clear and exact.

EXERCISE 1

The word "said" in the following paragraph is "overworked". Other words would make the meaning of each sentence clearer and the entire paragraph more interesting. For each numbered word "said", choose a word from the line of words that has the same number. Select the word that makes the meaning more exact.

"What kind of entertainment shall we have for our class party?" Joan said(a). Tim and David thought for a while. "How about a Punch-and-Judy show?" Tim said (2). "That's a good idea!" David said (3). "No, no, that's too silly!" Joan said (4). "Why don't we act out a mystery instead? Tim thought hard. Then he said (5), "Let's write our own play."

1. asked, explained, declared
2. announced, suggested, screamed
3. shouted, asked, insisted
4. consented, objected, whispered
5. replied, insisted, agreed

CHOOSING THE MORE EXACT SYNONYM

In choosing synonyms, select the one with the right shade of meaning. Make sure that the synonym you choose fits the context of the sentence in which it is used. A group of synonyms appears in parentheses in each of the following sentences. Decide which one can best be substituted for the underlined word.

1. Winslow Homer was an American painter who became <u>well known</u> (famous, notorious) for his pictures of fishermen and the ocean.
2. In 1610, Henry Hudson, an English sea captain, <u>looked around</u> (explored, searched) Hudson Bay, which is named for him.
3. The <u>old</u> (antique, elderly) woman fed the pigeons in the park every day at noon.
4. The movie star was <u>thin</u> (scrawny, slender) and glamorous.

5. The newspaper editor protested the senator's vote with a strong (forceful, muscular) editorial.
6. The United States increased (expanded, inflated) by acquiring new territories.
7. The timid (cowardly, shy) child was afraid to speak to Santa Claus.
8. Any imperfection (flaw, defect, blemish) in your vision may keep you from becoming a pilot.
9. Will you please skin (pare, peel) this orange for me?

CHOOSING ANTONYMS

Choose the antonyms for each word from the three words following it.

1. discard _____ keep, apprehend, appreciate
2. ashamed _____ faithless, proud, loyal
3. hostile _____ quarrelsome, harmful, firendly
4. idle _____ empty, busy, hollow
5. courteous _____ rude, civil, enthusiastic
6. incredible _____ correct, fantastic, believable
7. stationary _____ settled, movable, shaky
8. thoughtless _____ considerate, impolite, rude
9. eager _____ anxious, unbearable, listless
10. cautious _____ brave, reckless, shy

ANTONYMS MEAN THE OPPOSITE

EXERCISE 1

You can change the meaning of the following paragraph, as well as its entire mood, by substituting antonyms for the words underlined. Choose from the list the best antonym for each underlined word.

Steve walked slowly home from school, looking forward to his parents' reaction with fear. He trudged along the road, delaying the moment when he would give them his gloomy report. He sighed as he turned the corner into his own street. He saw his father's dull green car parked in front of the house. Soon, Steve thought, they will know the sad news.

a. happy	b. glowing	c. briskly	d. joy
e. raced	f. hastening	g. bright	h. laughed

EXERCISE 2

Words that sound the same but mean different things are called "homonyms". In the following sentences, choose the one word (in parentheses)that best completes the meaning.

1. Tom had a choice of _____ kinds of ice cream. (for, four)
2. Carol lost her new _____ of gloves. (pair, pear)
3. Dick's band uniform was _____ big. (two, to, too)
4. When she got there, the cupboard was ____. (bare, bear)
5. Sally knew that she could _____ John at checkers. (beet, beat)
6. I had to _____ in the dentist's office for half an hour. (wait, weight)
7. When did you _____ this dress? (dye, die)
8. _____ house has no garage. (Their, There)
9. John said he had a sharp _____ in his side. (pain, pane)
10. "I can _____ what you mean, "she replied. (sea, see)
11. She _____ the poem to the class and then asked if anyone had any questions. (red, read)
12. "This will be my first ride in a _____, "Sheila said. (plane, plain)
13. The announcement said the party would be held during the first _____ of July. (week, weak)
14. "If you select the _____ answer, you'll win a prize. "he said. (write, right)
15. Alice likes perfume and her favorite _____ is lilac. (scent, sent)
16. Frank denied that he had another _____ of chocolate cake. (peace, piece)
17. Danny bought a new rod and _____ before he went on his vacation. (reel, real)
18. "This is the first _____ I haven't had any homework, "Jill said. (knight, night)
19. He said he _____ be able to go if he finished his science project. (wood, would)
20. Allison says she will buy the dress in a _____ shade of blue. (pail, pale)

WORDS COME FROM PEOPLE'S NAMES

Some words in our language come from people's names. Did you know that sandwich comes from John Montagu, the fourth Earl of Sandwich, 1718-1792? He wanted a quick meal and asked for meat between some bread. From that time, we have used his title as the name of this invention. Dictionaries will sometimes give us information about words that were formed in this way.

A. Look at this list of names. On the blanks that follow them, write the words which you think might have come from these names. Look up your words to see if you are right. Then on a separate sheet of paper write the definition for each of the words.

1. Louis Pasteur, (French scientist who invented a way of keeping milk from spoiling) _____
2. J. Nicot (introduced tobacco into France in 1560) _____
3. J.G. Zinn (German botanist) _____
4. A. Dahl (Swedish botanist) _____
5. G.W.G. Ferris (American engineer) _____
6. P. Magnol (French botanist) _____
7. J.I.Guillotin (French physician) _____
8. R. Diesel (German inventor) _____
9. A. Volta (Italian physicist who invented the electric battery) _____
10. H. Geiger (German physicist) _____
11. B. Eustachio (Italian doctor) _____
12. Derrick (an English hangman) _____
13. A. Sax (German musician) _____
14. Americus Vespucius (Italian mapmaker and explorer) _____
15. G.D. Fahrenheit (German physicist) _____
16. Louis Braille (French teacher of the blind) _____
17. J.R. Poinsett (botanist) _____
18. Alexander Garden (botanist) _____
19. J. Watt (Inventor of steam engine) _____

Would you like to be remembered by having your name become a word? Make up a word from your name. Then write a definition for it.

HOMONYM HUNT

B. In the following exercise each definition is followed by an important homonym. Use this clue to help you find the missing homonym. Write the answer in the spaces at the end. Make sure each space contains only one letter.

Example: Two things that go together. It sounds like pear. P A I R

1. A narrow strap used to guide a horse. It sounds like rain. _ _ _ _
2. A tube that carries blood to the heart. It sounds like vain. _ _ _ _
3. An animal hunted for food. It sounds like pray. _ _ _ _
4. The chair on which a king or a queen sits during ceremonies. it sounds like thrown. _ _ _ _ _ _

5. The bottom of a shoe. It sounds like soul. _ _ _ _
6. The hair around the neck of a lion. It sounds like main._ _ _ _
7. People who are being cared for in a hospital. It sounds like patience. _ _ _ _ _ _ _ _
8. To change the color of something. It sounds like die. _ _ _
9. To sail around from place to place. It sounds like crews. _ _ _ _ _ _
10. A smell left by an animal. It sounds like sent. _ _ _ _ _
11. A number of animals together. It sounds like heard. _ _ _ _
12. The part of a person's body between the ribs and the hips. It sounds like waste. _ _ _ _ _
13. The front part of a boat or ship. It sounds like four. _ _ _ _

3. Outlining

ORGANIZING AND OUTLINING

Outlining is a way of organizing your thoughts to help you to remember and to see how various parts fit together to make a total idea. Glance quickly at the following 20 items. Close your eyes. How many can you recall?

1. table	6. baby	11. bread	16. meat
2. cereal	7. milk	12. furniture	17. son
3. people	8. stove	13. mother	18. sofa
4. chair	9. food	14. refrigerator	19. coffee
5. eggs.	10. lamp	15. father	20. daughter

A. A few of the above have been put into main places in this outline. Now that you know the main idea and see a pattern forming, finish placing the items in the outline so that an entire relationship is shown.

THINGS AROUND THE HOUSE

1. PEOPLE	II. FOOD	III. FURNITURE
A.	A.	A.
B.	B.	B.
C.	C.	C.
D.	D.	D.
E.	E.	E.
F.	F.	F.

B. Read through this list of items. What do they have in common?

Under what headings or topics might they fall?

On a separate sheet of paper make a simple outline and place these items in correct relationship to one another.

What will your title be?

1. English	6. basketball	11. arithmetic
2. recess	7. holidays	12. conditioning exercises
3. tumbling	8. geography	
4. assemblies	9. history	13. vacation
5. science	10. lunch	14. volleyball

OUTLINE STRUCTURE

The outline has a certain structure, just like a house or building. There are two kinds of outlines in common use: the topical outline and the sentence outline. In a topical outline each item is merely a topic to be discussed in your report; it is not a sentence. You will probably use the topical outline more often than the sentence outline.

OBSERVE THESE RULES IN MAKING AN OUTLINE

1. Place the title above the outline. It is not one of the topics.

2. Use Roman numerals for the main topics. Subtopics are given letters and numbers in the following order: capital letters, Arabic numerals, and small letters. (Small letter subtopics are seldom used.)
3. Indent subtopics so that all letters or numbers of the same kind will come directly under one another.
4. Begin each topic with a capital letter.
5. In a topical outline do not follow topics with a period.
6. There must never be a single subtopic; there must be either two or more subtopics or none at all.

CORRECT OUTLINE STRUCTURE
TITLE

1. Main Topic
   - A. Important Subtopic
   - B. Important Subtopic
     1. Minor Subtopic
     2. Minor Subtopic
        - a. Detail
        - b. Detail

II. Main Topic
   - A. Important Subtopic
   - B. Important Subtopic
   - C. Important Subtopic
     1. Minor Subtopic
     2. Minor Subtopic
     3. Minor Subtopic
        - a. Detail
        - b. Detail

SAMPLE OUTLINE
TARDINESS

I. Causes of tardiness
   - A. Oversleeping
   - B. Laziness
   - C. Indifference
   - D. Home responsibilities
     1. Younger children
     2. Ill parent
     3. House work

II. Results of tardiness
   - A. Loss of time from classes
   - B. Bad reputation
   - C. Punishment
     1. Extra assignments
     2. Loss of recess
     3. Loss of early dismissal

ORGANIZING IDEAS (OUTLINING)

Make a topical outline for the following article. Choose important details that support the main topic. Ignore information that does not relate directly to the main topic. (It may be helpful to change each main topic into a question. Each acceptable suptopic would be a direct answer to that question.) Letter each subtopic.

SPIDER INGENUITY

The angular spider, particularly an older one, spins her web during the night and then abandons it long before dawn. She goes to her day house nearby and hides.

Even though the web is out of her sight, the spider keeps a constant watch over it. To allow herself time in which to relax, she devises an ingenious signaling device.

Behind the web is a single thread, attached to the very center of the net and stretched tautly to the place where the spider is lurking. Choosing the center of the web as the spot to fasten the thread is not accidental. Since all the spokes of the net meet in the center, they carry even the slightest vibration made anywhere on the net to the center. As soon as the center of the net moves, the signaling cord is set in motion and relays the news to the spider in her den.

Even when dozing, the spider keeps a hind foot upon the signaling cord. Let any game appear on the scene and the slumberer is at once aroused by the vibrations reaching her leg. She hastens along the cord, using it as a footbridge to her web and prey.

The web is often shaken by the wind. The spider certainly must receive these vibrations along her signaling device. Nevertheless, she does not leave her hiding place; she remains indifferent.

This tells us that the thread must carry something in addition to the vibrations that can be felt by the spider. It must also transmit, like a telephone, tiny sound waves. The spider must listen with her legs and distinguish between the vibrations coming from a captive and those caused merely by the wind.

I. Habits of the angular spider
II. Reasons for signaling device
III. Description of signaling device
IV. Specific uses of signaling device

OUTLINING

Below are listed five main topics which should be arranged in outline from under the title of "Characteristics of a Good Student." Assort the subtopics and sub-subtopics under the main topics in correct outline form.

Main topics:

maintains courteous attitude
obeys school rules
keeps his locker in neat condition
does his assignments promptly
looks on going to school as a privilege

Subtopics:

plans higher education
stacks books neatly
is considerate of lockermate
in the halls
towards his peers
towards the teachers
in the auditorium
hangs wraps in place
reads text
does written work
on the school grounds
seeks further knowledge
reviews work for testing
in the gym
in the classrooms

Sub-subtopics:

in college
by extra reading in class
by research in the library
in professional school
in trade school
is unselfish
old friends
avoids clutter
new classmates
helpful in class
respectful in class

4. General L. A. (Grammar) Drill

I. What part of speech is each underscored word?

1. a. Cool water bubbles from the little spring.
   b. Children blew bubbles at the birthday party.
2. a. Everybody is in a great hurry before Christmas
   b. You hurry too much in your writing.
3. a. The average rainfall here is very low.
   b. Joe made an average of B this semester.
   c. Most laborers average forty hours of work a week.
4. a. The speaker did not seem at ease.
   b. Hot applications will ease the pain.
5. a. Next Sunday will be Mother's birthday.
   b. The old dog mothers the little chicks.
   c. All our mothers are invited to the tea.
6. a. Where is your home?
   b. He made a home run.
7. a. Turn up the collar of your coat.
   b. A law requires that we collar and tag dogs.
8. a. The children caught several large fish.
   b. Crowds fish from the bridge on holidays.
   c. We visited the fish market.
9. a. Armies sack towns in their paths.
   b. We carried lunch in a large sack.
10. a. Mary should not try to rival her sister.
    b. We had last year's champion as a rival.
    c. The rival team is from Bloomfield.

Identify each noun and tell whether it is a proper, a common, or a collective noun. Place the abbreviation P for proper, C for common, or Col for collective above each noun.

1. Mr. Harmon sold equipment for them from an office in St. Catherines.
2. A group of pupils decided the decision of the jury was wrong.
3. The committee selected Marilyn to run for office.
4. Marilyn declined the nomination before an assembly of representatives.
5. The club invited Ernie, Kandy, Tim, me,and Kitty, my cat.
6. Her group of friends includes a small poodle named Hannibal the Great.
7. He arrived from London, which is the capital of England.
8. The meanest bulls are cut from the herd to go into the ring.
9. The crew of the Hornet enjoyed a bullfight in Mexico.
10. The team decided new uniforms must be purchased before the game in Halifax.

Complete each of the following sentences by writing in the blank provided at the right the correct pronoun in the parentheses.

1. That is (which, what) I honestly believe.
2. There is no use in going without (you, your) having the material.
3. (Me, My) listening to the ball game is getting on his nerves.
4. Mother waited for (he and I, him and me) until six in the morning.
5. Everyone should develop a hobby for (himself, themselves).
6. This idea eliminates the need for cash, (what,which) has been the problem.
7. Give the circus tickets to (whoever, whomever) calls for them.
8. The elephants (that, who) are going into the ring next are dressed in skirts.
9. It was he, (who, whom), I believe, I saw on the trapeze last year.
10. (Them, Their) walking the tightrope was a fascinating thing to watch.
11. Jodie bought popcorn for Edna and (we, us).
12. Esther and Paul are laughing at the monkeys (who, which) are climbing the pole.
13. That sad clown (who, whom) owns the tiny dog was not here last night.
14. The tigers are roaring at (he and I, him and me).
15. To work the centre ring, (who, which) is reserved for the best acts, is the ambition of all the performers.

UNDERSTANDING VERBS

Nouns are words that name persons, places, or things. Verbs are usually action words such as jump, crawl, shout, or stagger. They explain what the nouns are doing.

Almost immediately the sharks attacked.

Sometimes verbs explain what is happening in someone's mind.

Sergeant Smith recognized the car instantly.
Mark and I studied science last night.

Some verbs that we use all the time do not show action. These verbs tell us that something is, was, or will be.

Both Helen and Sharon are in this race.
My brother will be sixteen tomorrow.

The most common nonaction verb is be. This verb has many different forms such as am, is, are, was, were, shall be, will be, have been, has been, and had been. Remember that every sentence must have at least one verb.

Circle the verb in each of these sentences.

1. All night the young coyote searched for its mother.
2. Instantly the eagle pounced on the young rabbit.
3. We scrambled quickly to the top of the rocky slope.

4. The explosion rattled the windows in the cabin.
5. Last night I dreamed about a flight in a space ship.
6. Gradually the strange machine squeaked to a stop.
7. My brother and his friends were in the middle of the mud puddle.
8. Suddenly a large rock crashed through the kitchen window.
9. The first helicopter landed within five minutes.
10. The two elephants collided with a tremendous thud.
11. Without a sound the snake slithered into the tall grass.
12. The man in the red jacket is my uncle.
13. Last night I read a book about the gold rush.
14. Geoff followed the old man up several staircases and through a small door.
15. Cathy and Alex played chess until ten o'clock.

Try to always choose verbs that make your writing clear and exact. Strong, action-packed verbs help a reader to imagine exactly what happened. After each of the following sentences write at least three strong verbs that could replace the weak verb which is underlined.

Example: During the storm giant waves hit against the rocks.
crashed smashed pounded beat slammed

1. As soon as they lit the fuse, the men went toward the shelter.
2. "Move back, that tank could explode at any minute!" said the officer.
3. The old man looked at the children on the merry-go-round.
4. The injured hunter moved across the room and collapsed.
5. Instantly I put my books in my desk and was gone.

5. Creative Writing

THE SENTENCE

A. Following are fifteen groups of words. Some are complete sentences; others are not. In the space at the right, identify each group. Use S for a sentence and NS for a word group that is not a sentence.

1. Every town in America has thousands of bells.
2. Most of the bells are small, unmusical, working bells.
3. Which, like dairy cows, couldn't sing if they tried.
4. They call me to the front door and begin and end school classes.
5. When your alarm clock starts ringing.
6. Every time that a buzzer sounds in school.
7. You hear a bell of some kind, however small and humble.
8. If every bell fell silent, clearly we'd be in trouble.
9. Churches with bells and town halls with clocks that strike the hour.
10. They usually sound the loudest.
11. A town is fortunate to have melodious chimes and bells.
12. Our most famous bell, in Philadelphia's Independence Hall.
13. Now silent because it has a deep crack in it.
14. A cracked bell sounds bad and sets your teeth on edge.
15. Unlike that buzzer at the end of a hard class.

B. Decide whether the following sentences are declarative, imperative, interrogative, or exclamatory. Identify each by writing

int. for interrogative	dec. for declarative
exc. for exclamatory	imp. for imperative

Then, after you have written the kind of sentence, write the proper mark of punctuation for it in the parentheses given.

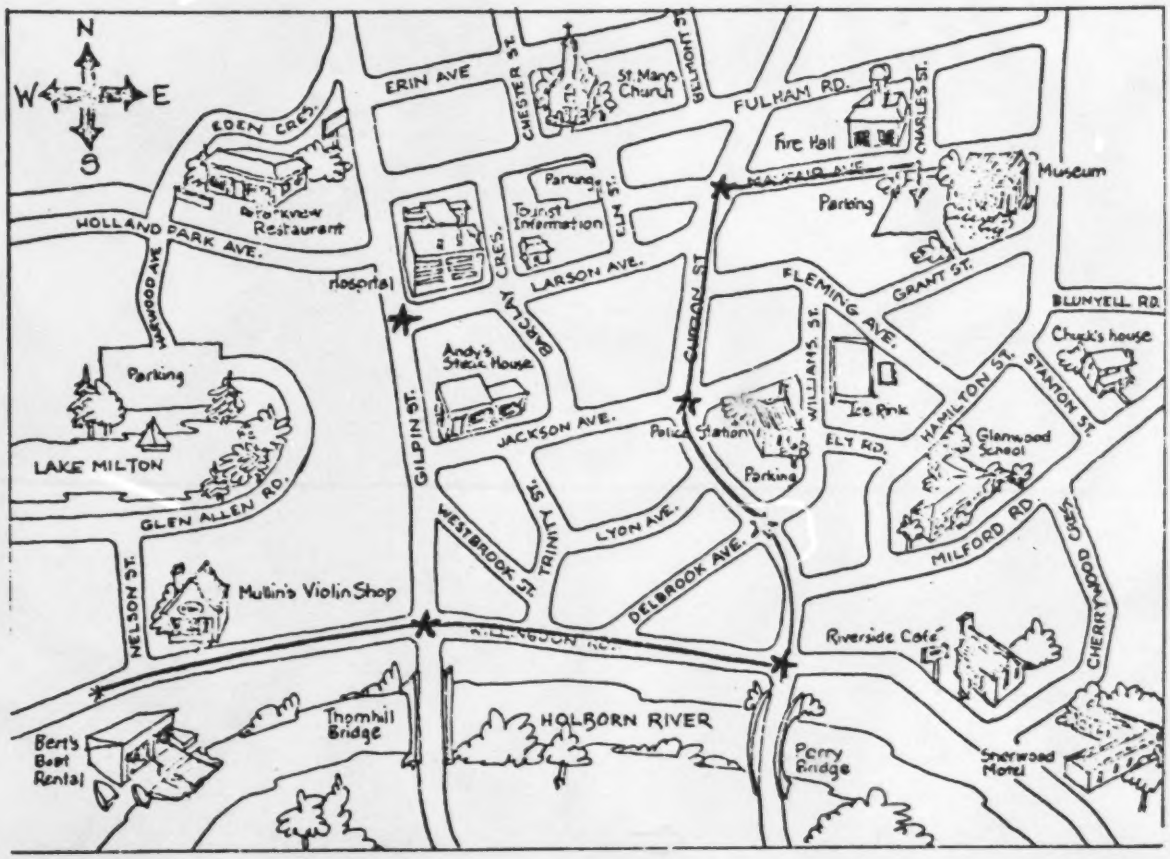
16. How many of us will ever own a horse
17. For that matter, how many of us have ever ridden a horse
18. Clearly there aren't enough horses today to go around
19. There are about ten students for every horse in this country
20. My father once owned a pony but didn't keep it long
21. It was badly trained and often ran away with him
22. His worried mother was forever shouting for help
23. "Father, the pony's run away with George again"
24. Once the pony threw my father out of the saddle and broke his arm
25. My grandfather was furious and began to shout
26. "George, get rid of that dumb horse immediately"
27. The word wasn't "dumb" but sounded a good deal like that word
28. Today owning and feeding a horse costs lots of money
29. One horse owner is supposed to have made a painful decision
30. He said that hay and oats cost so much that he fed his horse chopped-up ten-dollar bills instead
31. Will people soon have to go to Westerns to see what a horse looks like
32. When that time comes, small boys will sit there fascinated
33. They might shout "Wow! Those horses are ten times the size of my rocking horse"
34. Will horses be in the zoo next to the elephant house
35. I hope there will be some cowboys able to ride horses

C. Some of the following sentences are simple, and some are compound. Identify each, using S for simple and C for compound.

36. Farmers do not like hot, dry weather.
37. During a drought the weeds grow, but the crops often die.
38. Too much rain is not good for crops either.
39. Do ducks like a whole week of rain?
40. At least they swim and play, and they eat happily.

Giving Directions

Could you direct someone to the police station or the nearest restaurant in your community? Knowing how to give directions *clearly* and *accurately* is a most important skill. Here is a map of the city of Bloomfield. Intersections that have traffic lights are marked with the symbol ☆.



1. You must go to the police station. You are at the Fire Hall.
2. How would you go from the Tourist Information Center to Bert's Boot Rental?
3. Go from St. Mary's Church to the Riverside Cafe.
4. You are at the Sherwood Motel and you are going to the Fire Hall.
5. How would you go to the Parkview Restaurant from the Fire Hall?
6. How would you go from Andy's Steak House to the Museum?

Taken from: Dave Martin, Communicating Skills: a Language Arts Workbook, D.C. Heath Canada Limited, 1976.

DIFFERENTIATED SUPPORT OPTION HANDBOOK

MATHEMATICS

By Garry Douglas
Cam Eddy

MATHEMATICS DIFFERENTIATED SUPPORT OPTION

SETTING

The students in the special program all live in the Millwoods area of Edmonton. In this suburb of approximately 50,000 people there is a broad cross section of socio-economic status with only the very top incomes missing. The cumulative records of the school indicate many persons are self-employed in their own small businesses with only five per cent having graduated from post secondary institutions.

Edith Rogers' population this year was 619 which was balanced with 8 classes in each of the grades. In grade seven, there were 208 students with an overbalance of girls. The main facility was designed for 500 students; eight portables have since been added. These additional students cause an obvious over crowding which is enhanced by narrow hallways and little storage space and a small library.

Any other problems that could be listed would not be unique to Edith Rogers. They are the usual types of problems common to Junior High Schools of our size.

PHILOSOPHY

The Differentiated Support Option (DSO) program met two basic needs of the school. It allowed the teachers to place both "Remedial" and "Differentiated" students into separate classes. The remedial students were those who were less than one grade level below placement, while the differentiated students were more than one and a half years behind grade placement.

The remedial students' program differed from the DSO program. In the remedial program the students were provided with a variety of activities that would not be found in a regular classroom, while the DSO students program paralleled the regular program very closely. In both classes an emphasis was placed on fundamentals.

This method of offering remediation through an option program was a philosophy different than in previous years. In the past, the remedial classes were not provided while differentiation was a regular core program. In the differentiated program students were placed in one of three classes to accommodate the streaming of the Mathematics and Language Arts differentiated classes. All other classes were heterogeneous in make-up. With the DSO program, all core classes were heterogeneous in their make-up. Our radical change in philosophy helped to overcome several problems which are listed below.

1) Students no longer had to be placed in one of three regular classes to receive differentiation.

2) Students were no longer labelled as "dumb", by peers and teachers.

3) All students had a better chance to pass the "City Final" exam because now everyone studied the same content.

4) The most obvious problem the program solved was the pupil-teacher ratio with these slow students. In the old differentiated program there was a ratio of 15 to 1; now it was only 8 to 1.

5) The weak student was given more instructional time, whereas, before he was given the same amount of time as other students.

6) There were no longer any classes which had an over-balance of weak students. This eliminated some major discipline problems in the core classes.

7) The program allowed the teacher to distinguish between remedial and differentiated students. Before they were lumped together.

MECHANISM

Since this was an option students were selected by the following procedures.

1) Recommendation by their grade six teacher
2) Recommendation by their grade seven teacher
3) Recommendation by parent
4) Student choice

All the students who were recommended were administered the Davis Diagnostic Mathematics Test. On the basis of this test, students were ranked and three classes were formed, two Differentiated Support Option classes and one Remedial Math class. Thirteen DSO students were identified. The five weakest went with one teacher and the rest with another.

It should be noted that parents' consent was not considered mandatory for the placement of a student and that there was considerable flexibility for a student to transfer from one section of the option to another. Once in the program it was also easy for students to transfer out. Students were not locked in a program if it didn't serve their needs.

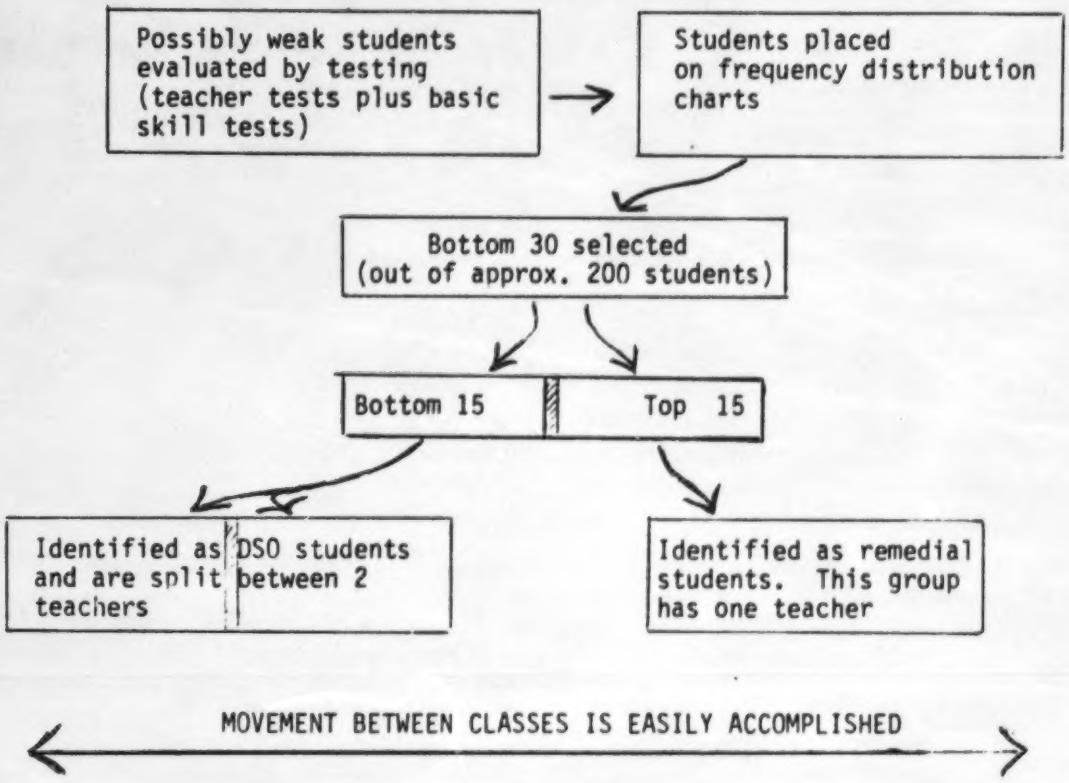
Moving from one section to another should be motivated by the following criteria.

a) ability levels should be kept as close as possible
b) personality clashes of a serious nature should be avoided
c) changes in skill levels may require a movement from one section to another
d) parents may wish a change

Some parents requested that their children be placed in the DSO who were not originally thought to be candidates for the group. Usually this request was discouraged although in one instance a student was admitted to the program. This student herself requested removal from the program after several weeks and was accommodated.

Communication with parents is important to this program. However as the above paragraph shows, placement has to be a teacher decision. The kind of communication that should go on frequently is more of a "reporting" nature mentioning <u>skills</u> needing improvement and changes in attitude.

SELECTION FLOW CHART


Possibly weak students evaluated by testing (teacher tests plus basic skill tests)
Students placed on frequency distribution charts
Bottom 30 selected (out of approx. 200 students)
Bottom 15
Top 15
Identified as DSO students and are split between 2 teachers
Identified as remedial students. This group has one teacher
MOVEMENT BETWEEN CLASSES IS EASILY ACCOMPLISHED

One difficulty did arise. Students may be easily moved from "Remedial" to DSO or in the other direction, however since the time blocked for the DSO and Remedial is only two periods a week students wishing to enter or leave the program had trouble entering or leaving other options. Since these other options are not just two periods a week some students ended up with "study" periods.

METHODOLOGY AND SPECIFIC INSTRUCTION

A) Of the weaker of the two DSO classes.

The following is an overview of the procedures used with the weaker class of the DSO students.

In the beginning students were presented with activities that allowed for immediate success and rewards. With some students this was more difficult because they didn't even know their basic facts in any of the four operations. Even at this level the achievement or competency level was diverse. This was demonstrated in two ways: first, in their speed of recall and second, in their attention span.

One important procedure became quickly apparent, all work had to be completed during class time. Students could not be relied upon to complete any specific homework tasks from one period to the next. This was even more of a problem whenever Friday was a holiday and the students were not seen until the following Tuesday. In addition to this the 40 minute period needed to be planned like a primary classroom timetable. Several different tasks needed to be assigned in accordance with their attention span. As an added incentive, any boardwork activity, no matter how simple was always natural motivation to help the learning process. Therefore any games which required the use of the blackboard (by the students) were instantly successful.

Division processes and understanding fractions prove very difficult for DSO students. Extra time was given to these difficult areas but the weakest student in class could still not do basic questions. As the year progressed this student became isolated. The only real progress she made was in her attention span and self-concept. Since these were some of our initial goals success is still significant even though it is based only on teacher observation.

The students frequently used the Basic Skills Program (E.P.S.B.) workbooks which paralleled the Consortium Workbooks (E.P.S.B.) which were used for their regular mathematics class. The Basic Skills Workbooks did not leave the classroom because students could not be relied upon to bring them back to class.

Where necessary extra questions were made up to help specific students. When the students became frustrated, whatever the reason, (the main one being the last period of the day) we would revert to an informal share time. Each of us shared our problems and frustrations. This would last approximately 5 minutes (hardly ever longer) then everyone got back to work.

A typical period started with 5-6 minutes of drill of a specific concept. The drill took the form of

a) Flash Cards
b) Work Sheet
c) Blackboard Work - drills to 15 minutes.

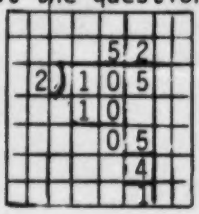
Topics for drill activities were

a) Time Tables (1x1 -- 12x12)
b) Adding Tables (sums to 100)
c) Division Tables (up to 12)144)
d) Subtraction Tables (differences up to 20)
i.e. 90-70=20
e) Vocabulary from units of study
f) Puzzle pages
g) Oral questions

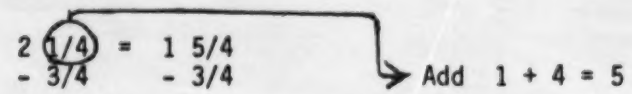
A great deal of time was spent on basic procedure or how to do specific questions, step by step, rather than on why one does specific steps.

Examples of this are:

a) In division
Put the question on grid paper.



b) Subtraction of Fractions, concept: borrowing.



STEPS - 1) find common denominator (if necessary)
2) subtract one from two
3) add 1+4 in ¼ and place answer above the four in $\frac{}{4}$
4) subtract as usual

In short, whenever the students were weak in a skill the operation was broken down to a series of workable and manageable steps that would meet any situation. The how, not the why, was stressed.

After the drill sessions of each period, work was given that paralleled the current unit being taught in the regular math class. At this point the class went in one of two directions. Either the student worked on the sheet or the teacher helped him with his homework if he had a specific problem. So at all times a student was receiving individual help related to his needs for that week.

B) Instruction of the Better of the Two DSO Math Classes.

In the "Consortium" regular program, the workbook lists objectives (skills) at the beginning of each unit. These objectives were followed throughout the year very closely. Final exams were based on these skill lists. If students' marks were to be raised in the regular curriculum strict adherence to that curriculum was necessary. Students did not receive a multiplication drill if we were working on a measurement unit or a puzzle that stressed division when we were supposed to be covering set theory.

A TYPICAL FIVE PERIODS IN THE DSO

DAY 1 (40 min. period)

TOPIC - RATIONALS - L.C.M. (Lowest Common Multiple)

a) begin by sitting with the students and go over some of the work they have been doing in their regular classroom. (have them bring their regular notes and texts to class). This will enable you to see what kind of progress is being made by each student. You can help the student organize his book, do problems, catch-up

on homework etc. but most of all by sitting next to the student you can establish some rapport and friendship.

b) After helping each student for few minutes take up a few problem items on the overhead projector. Very frequently the problems one student is having will be shared by others. Nothing is more satisfying to a student than watching a classmate try to work out a problem on the overhead and finding out that others have problems just like theirs. If students work on the overhead projector it is a good idea not to help them....try letting them ask other students for help.

This period of time on the overhead need not be long, ten or fifteen minutes is plenty.

c) Students then go to the library where a dozen books have been set aside and the pages marked where readings about RATIONALS can be found. There are many books, including encyclopedias that talk about fractions. (Even history books on war, armies etc. if the teacher is so motivated). Students really enjoyed reading these books and it only took about 15 minutes to preselect them. The last part of the period is spent with the students browsing through books. Never do this for a whole period.

DAY 2 (40 min. period)

TOPIC - RATIONALS - L.C.M.

Specific Goal - Solve questions that ask for the lowest common multiple

Example. Find the L.C.M. of 12, 16, and 20.

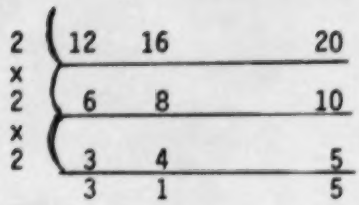
Procedures:

a) drill on times tables for 5 min.

b) teach this process

2 x	12	16	20
2 x	6	8	10
2 x	3	4	5
2 x	3	2	5
3 x	3	1	5
5	1	1	5
240	1	1	1

NOTE: Math teachers will notice that this procedure is lengthy. It is however straightforward. The alternative is



Here is the kind of problem situation to avoid when teaching students of any ability. Concepts such as prime number, factor, factoring etc. have to be understood before this shorter (easier?) method can be used successfully. Explaining why you stop dividing at this point is easier if you can use ideas like prime numbers. Obviously some skillful teachers will be able to teach more complex skills than others. The point here though is to carefully consider each process taught so it may be used by the student. Be utilitarian. It works.

There is one other great advantage to being "utilitarian". Students will often see a short cut if you take the long way around a problem. They often never "see" the short cut if that was all they saw in the first place!

c) hand outs with questions like the examples used are done by students. It is a good idea to correct 2 or 3 questions every 5 minutes. (overhead or blackboard)

d) Remainder of time on times tables, concentrate on 2 times, 3 times, 5 times and 7 times, as these are prime numbers. Choose a different medium. Try having a pre-recorded times tables tape, all the students need is an answer sheet, and concentration.

DAY 3 - (40 min. period)

TOPIC - RATIONALS - L.C.M.

ACTIVITY - A PUZZLE(S)

This puzzle is very popular and can be used frequently in different forms.

L.C.M.

A	2, 3, 4	H	100, 200	O	1000, 2000
B	8, 10	I	300, 10	P	1400, 14
C	6, 18	J	14, 20	Q	7, 12, 20
D	4, 5, 20	K	33, 11	R	16, 32
E	19, 4	L	33, 11, 2	S	8, 16
F	5, 6, 7	M	3, 4, 5	T	8, 16, 3
G	1, 2	N	8, 9	U	5, 10
				V	1001, 2002
				W	1, 100
				X	50, 500
				Y	56, 112
				Z	19, 38

Secret message. (answers are under the blanks! Students put letters that go with the answers on top of the blank)

300	48	300	16	40	76	48	48	76	32

48	2000		2	300	2002	76	
48	200	12	72		48	2000	
32	76	18	76	300	2002	76	

The answer is "It is better to give than to receive!"

DAY 4

TOPIC - RATIONALS - L.C.M.

ACTIVITY - FILMSTRIPS ON FACTORING, FACTORS, ETC.

(It is best to ignore captions and discuss the filmstrips as you think they would benefit students. The visuals in filmstrips can be very valuable if previewed ahead of time)

Sooner or later students will confuse factors and multiples. Filmstrips are an excellent way to solve this problem.

During the filmstrip give students problems to do, pictures, diagrams, etc., so that they can follow you and try a few related problems at the same time.

Filmstrips can be stopped. If necessary, stop and explain. Take time and the pictures in the filmstrips will prove valuable.

Note: Some movies can be used in a similar manner, although they require considerable teacher adaptation.

DAY 5

TOPIC - RATIONALS - L.C.M.

ACTIVITY - A HOMEWORK CATCH UP PERIOD

This kind of period is only successful if the teacher keeps very aware of what each student is REALLY doing. If the teacher waits for the students to ask for help they might as well be in a regular class. The teacher must initiate the help.

Since there are only 2 DSO math periods a week teachers can plan for special visuals, special sheets, different approaches etc. If the teacher is not willing to make special plans for each DSO class it is a real waste of time. Just because the material is "easy" does not mean it is "easy" to teach. On the contrary, it will take the best teachers to teach this class.

EVALUATION OF STUDENTS

Although marks were awarded in the math section of the DSO it is our opinion that there should be no evaluation at all on report cards. Since the curriculum is supposed to be the same in the DSO and the regular program, the mark obtained in the regular class will be a good indicator of success in the DSO. Giving a formal evaluation of a student in the DSO seems to go against the spirit of "helping"so important in this program. I realize that some administrators say you must give a mark. Obviously you must do what you must do...

Evaluation of students must of course be done constantly in order to determine teaching procedures. Small tests were frequently given in both groups of the DSO and were designed to test only what was taught recently so the student could frequently achieve a fair mark.

DISCIPLINE

One teacher told the class that they would not be sent to the office for misbehaviour and that misdemeanors would be dealt with by isolating the student in the classroom. This procedure worked and had to be implemented only rarely. The other teacher used no real discipline "techniques" as such as the need did not arise. With only a half-dozen students in each class, discipline was not a problem to either teacher.

It seemed that both DSO classes were happy as "classes". Their deportment was usually quite good as were their attitudes, due to the number in each class and the amount of attention they were getting. Probably one of the best discipline techniques in these classes would be a well planned and thoughtful teacher.

EVALUATION OF THE OPTION

1. Does the option meet student needs?

The greatest student need in the DSO is for an understanding teacher. Thus the selection of teachers is very important to the success of the program. Beginning teachers should be discouraged from partaking in this program. Another student need is for an organized approach to remediation--not just many drill sheets but something that will help with their regular curriculum. This need is fulfilled by the DSO only if the teachers follow instructions and follow the curriculum. Students in the DSO also need a lot of individual attention. Obviously with classes of around six students this is very possible if the teacher has a reasonably high energy level. Students also frequently have a need to improve their self-concept in the DSO. Some students were able to improve their self-image even when their marks did not improve!

Where does the program NOT meet student needs?

There are only 2 periods a week in this option. Often these periods are at or near the end of the day (FRIDAY!) This is not the easiest time to stir up a positive self-image! As well, the program was not well understood

by students in regular classes. It might have helped build a good self-concept if the peers of the DSO students understood what the program was all about. Perhaps they should have understood but they didn't. Some students thought DSO students were failures; other thought they were differentiated. Some thought that being in the DSO meant you couldn't do matriculation at high school.

2. What is it like to teach the option?

It is a good deal of work. Teachers who have taught all subjects to elementary students will have some empathy with DSO teachers. You have to change activities and teaching styles frequently for the best results. The DSO preparation for two periods a week took as much or more time than five regular math periods. A good estimate would be two hours of preparation per week.

3. What did teachers outside the option think?

Many commented on the small class sizes, and were asking why they could not have it so "good".... There is definitely a need for the rest of the staff to be informed about what is involved in this program.

4. Viability for other schools

This option is a good idea. It serves students, teachers, and administrators well. It would be a shame if such a potentially great program were only available if the block-pairing of teachers was done. (Two teachers pair together and teach 4 core subjects to two classes.). The DSO is a worthy idea by itself. Other schools who are thinking of adopting the DSO can be assured that the program is excellent for the students.

5. Other Personal Opinions

Perhaps it could even be applied to subject areas other than language arts or mathematics. It may even be a mechanism whereby enrichment could be provided for gifted students. Certainly it is a means by which slower students can be helped with the least deleterious effects on the student or other aspects of the junior high school program.

A P P E N D I X

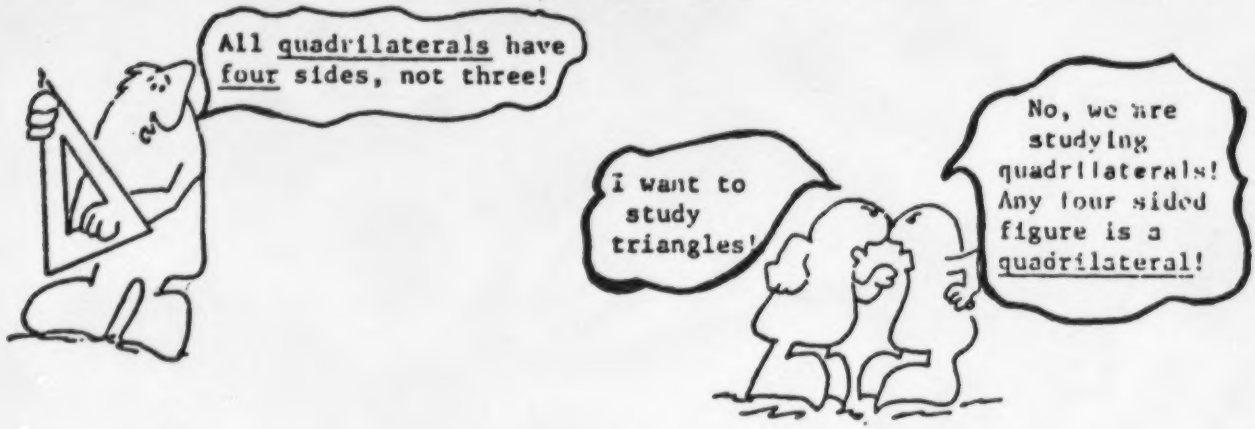
STUDENT HAND OUT

One source of student material was the "Junior High Mathematics Basic Skills Program". These workbooks parallel the regular mathematics program. Their original purpose was for the Edmonton Public School Differentiated Mathematics Program. In the DSO, they were useful in providing activities to supplement the main activity of daily help with the regular core work.

Sample pages have been copied from various units of the "Basic Skills Program" for your interest.

Geometry Unit

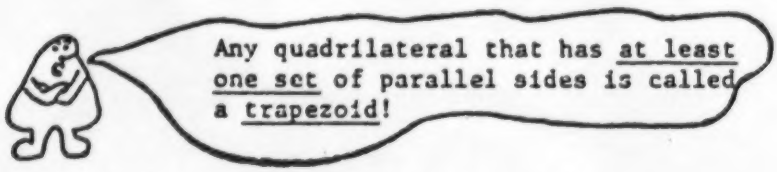
EXERCISES : **QUADRILATERALS** OBJECTIVE NO. 14


All quadrilaterals have four sides, not three!
I want to study triangles!
No, we are studying quadrilaterals! Any four sided figure is a quadrilateral!

EXERCISES

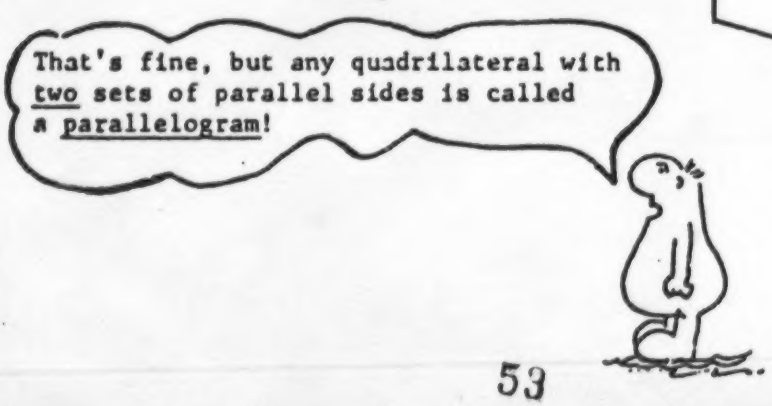
I. Place a (✓) inside those figures that are quadrilaterals.

1. 2. 3. 4. 5.



II. Place a (✓) inside those figures that are trapezoids.

1. 2. 3. 4. 5.



Rational Numbers Unit

EXERCISES: **FACTORS** OBJECTIVE: A-1

I. For each number list the set of factors,

1. 6 - 1, 2, 3, 6	2. 15	3. 18
4. 25	5. 21	6. 26
7. 14	8. 50	9. 60

II. 1. List 5 multiples of 3

2. List 5 multiples of 7

3. List 5 multiples of 2

4. Find and list ten numbers which are multiples of both 2 and 5

III. 1. Underline the multiples of 5

2,7, 15, 24, 35, 100

2. Underline the multiples of 9

4, 6, 9, 12, 18, 24, 27, 30, 36

IV 1. Which of these numbers are <u>multiples</u> of 6?

12, 31, 42, 81, 102, 232

2. Which of these numbers are <u>multiples</u> of 25?

200, 5000, 6025, 170, 1240

3. Which of these numbers are <u>factors</u> of 117?

1, 13, 53, 76

4. Which of these numbers are <u>factors</u> of 60?

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Rational Numbers Unit

EXERCISE: OBJECTIVE NO: A-4

I. Find the numbers that make these open sentences true. There are two ways of finding each number. The first is done for you. Use which ever method you prefer to complete the others.

1. $105 = 3 \times 5 \times \square$

   First method: Factor 105

   $105 = 3 \times 5 \times 7$

   Therefore, the missing factor is 7.

   Second method:

   $3 \times 5 = 15$

   $105 \div 15 = 7$

   Therefore, the missing factor is 7.

2. $30 = 2 \times \square \times 5$
3. $20 = 2 \times 2 \times \square$
4. $70 = 2 \times \square \times 7$
5. $40 = 2 \times 4 \times \square$
6. $24 = \square \times 3 \times 4$
7. $50 = 2 \times 5 \times \square$
8. $100 = 2 \times 5 \times \square$
9. $70 = \square \times 5 \times 7$
10. $32 = 2 \times 2 \times \square \times 2 \times 2$

II. 1. $42 = 3 \times 2 \times 7$

   (a) How many 7's are there in 42? _____

   (b) How many 2's are there in 42? _____

   (c) How many 3's are there is 42? _____

2. $130 = 2 \times 5 \times 13$

   (a) How many 13's are there is 130? _____

   (b) How many 5's are there in 130? _____

   (c) How many 2's are there in 130? _____

III. Factor each number into a product of prime factors, (complete factorization)

e.g.

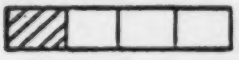
1. $60 = 2 \times 2 \times 2 \times 5$
2. $22 =$
3. $18 =$
4. $24 =$
5. $40 =$

Rational Numbers Unit

EXERCISES: OBJECTIVE NO: B-3

I. Draw a line matching two picture models to show equivalent fractions.

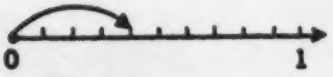
(1)

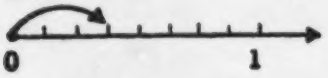
(2) 

(3)

(4)

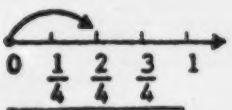
(5)

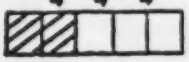
(6) 

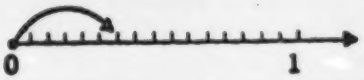
(7) 

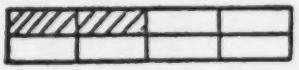
(a)

(b)

(c) 

(d) 

(e) 

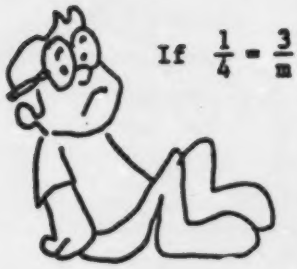
(f) 

(g)

II. Plot the following points on a number line:

$\frac{1}{4}$, $\frac{2}{5}$, $\frac{6}{10}$, $\frac{3}{10}$, $\frac{4}{5}$

EXERCISES: (CONT'D) OBJECTIVE NO. B-5



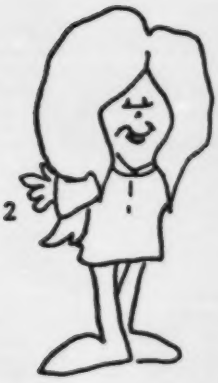
If $\frac{1}{4} = \frac{3}{m}$, how can I find the missing number?

Simple: $\frac{1}{4} \overset{\times 3}{=} \frac{3}{12}$. So m = 12

How about something like

$\frac{10}{15} = \frac{m}{3}$?

$\frac{10}{15} \overset{\div 5}{=} \frac{2}{3}$ So m = 2



VI. The pairs of fractions below are equivalent. Find the missing number. The first one is done for you.

1. $\frac{1}{2} \overset{\times 4}{=} \frac{m}{8}$ so $\frac{1}{2} = \frac{4}{8}$
2. $\frac{1}{4} = \frac{m}{8}$
3. $\frac{5}{6} = \frac{m}{12}$
4. $\frac{10}{12} = \frac{m}{6}$
5. $\frac{8}{10} = \frac{m}{5}$
6. $\frac{6}{5} = \frac{m}{15}$

Rate, Ratio Unit

EXERCISES: **SHOPPING MATH** OBJECTIVE NO. 1

SHOPPING TRIP MATHEMATICS

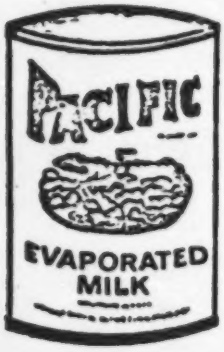
I. By studying the diagrams and information find a rate that can be expressed in the form $\frac{a}{b}$.

Example 1:

EVAPORATED MILK

PACIFIC

500 g net weight tins..... **2 for 59¢**



This milk sells at a rate of $\frac{2 \text{ cans}}{59 \text{ cents}}$

or we could also say, $\frac{59 \text{ cents}}{2 \text{ cans}}$

Think- each rate question can be expressed in two ways.

Example 2:

APPLE SAUCE

SUNRYPE, CANADA FANCY

400 mL tins.....**3 for 99¢**

Apple sauce sells at a rate of

$\frac{3 \text{ cans}}{99 \text{ cents}}$ OR $\frac{99 \text{ cents}}{3 \text{ cans}}$

Notice.. The units (cans and cents) must be included in the rate.

1. Rate = $\frac{\text{jars}}{\text{cents}}$

FRESH PACK ONIONS

BICKS

350 mL jars.....Each **83¢**

2. Rate = $\frac{\text{cents}}{\text{jars}}$

RELISH LIBBY'S

Hot Dog, Hamburger, Sweet

350 mL jars.....**2 for 95¢**

Rate, Ratio Unit

EXERCISES: (Cont'd) OBJECTIVE NO. 1

III. By studying the diagram find a ratio that can be expressed in the form of $\frac{a}{b}$.

e.g.

The ratio of the boy's height to the policeman's height is $\frac{1}{2}$, or we may say the ratio of the policeman's height to the boy's height is $\frac{2}{1}$.

e.g.

The ratio of the small boot to the large boot is $\frac{15}{25}$.

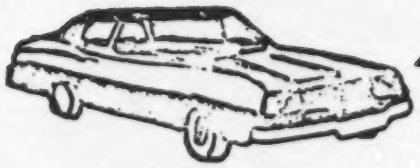
1.

length width

Ratio = _____ or Ratio = _____

width length

2.



← 8 litres anti-freeze

←12 litres water

Ratio = _____ or Ratio = _____.

Rate, Ratio Unit

EXERCISES: (Cont'd) OBJECTIVE NO. 1

ENJOY FRESH PRODUCE

3. **Celery** Canada No. 1 ..... 500g 59¢ Rate = _____

4. **Cucumbers** Canada No. 1 ..... 2 for 89¢ Rate = _____

5. **Oranges** Sunkist Valencias Size 56's ..... 8 for $1.00 Rate = _____

6. **Potatoes** Canada No. 2 Netted Gems ..... 5 kg for $2.69 Rate = _____

7. **Apples** Canada Fancy Winesaps ..... 2 kg $1.00 Rate = _____

8. **Cauliflower** Canada No. 1 Size 18's ..... 1 kg $1.49 Rate = _____

II.

1. **Lipton's Soup** Chicken Noodle Mix 120 g pack ..... 2 for 89¢ Rate = _____ packages or _____ cents per package

You may use 1 dollar or 100 cents for the cost in question I. (5).

2. **Toilet Tissue** Silk Assorted Colors ..... 4 roll pkg 79¢ Rate = _____ or _____

3. **Lemonade** Minute Maid Regular or Pink Frozen Concentrate 200 mL tin ..... 4 for 95¢ Rate = _____ or _____

4. **Margarine** Blue Bonnet, Colored 1.5 kg ..... 1 pkg $2.09 Rate = _____ or _____

5. **Chocolates** Black Magic 500g ..... 1 box $2.89 Rate = _____ or _____

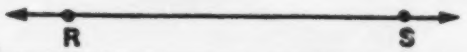
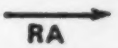
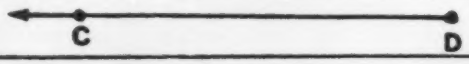
6. **Dad's Cookies** Oatmeal 2 kg ..... 1 pkg $1.77 Rate = _____ or _____

7. **Spaghetti** Taste Tells in Tomato Sauce with Cheese 400 mL ..... 3 for 89¢ Rate = _____ or _____

Geometry Unit

EXERCISES: OBJECTIVE NO. 1

I. COMPLETE THE CHART

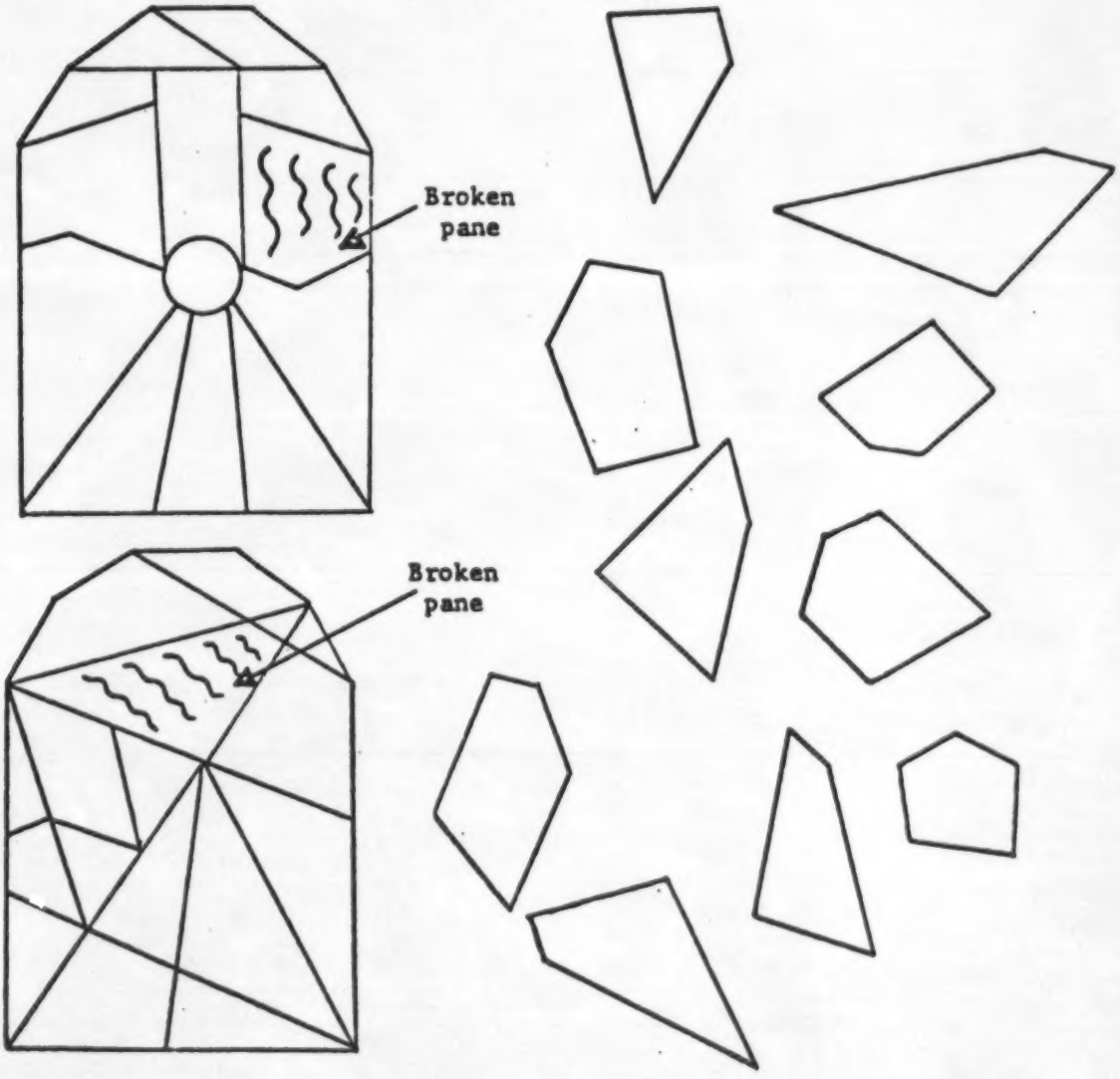
	GEOMETRIC FIGURE	NAME	SYMBOL
1.		line MP	
2.			
3.			•B
4.		segment BH	
5.			
6.			
7.			
8.			

II.

1. Is point T between points D and P?
2. Is point P between points T and L?
3. Which of the five points are between two other points?

II. DECORATIVE WINDOWS

A glass pane is to be replaced in each of the two window frames below. Draw a line joining the pane in the frame and the polygon at the right which would fit it.



COLOR THE WINDOW: Color each polygon region so that no two polygons with the same color touch. Use as few colors as possible.

Geometry Unit

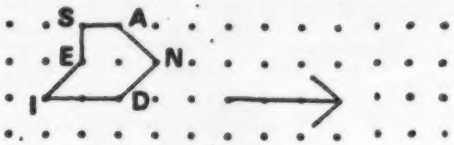
EXERCISES: **SLIDES** OBJECTIVE NO. 3

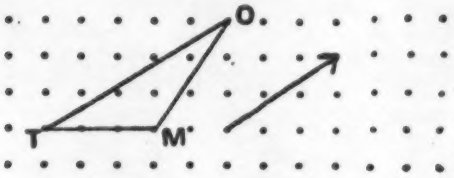
REQUIREMENTS OF A SLIDE

I. Draw the image of each. Label the image correctly.

e.g. DOG and D' O' G'

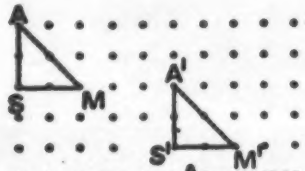
1.

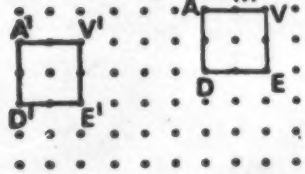
2. 

3. 

Is the distance that D moved to become D' the same as the distance from O to O' and G to G'?

II. Draw a slide arrow to indicate the motion.

1. 

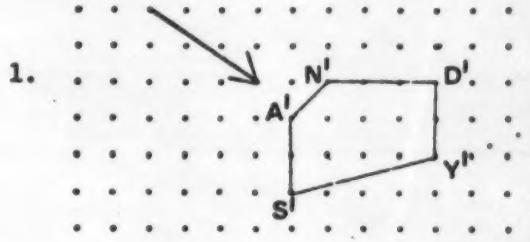
2. 

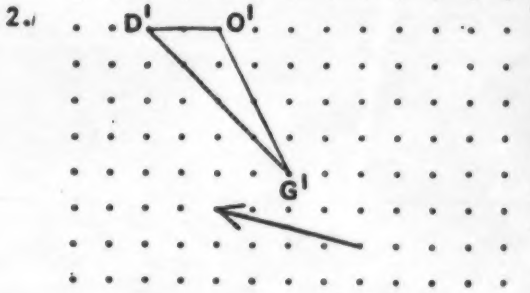
III. Give the slide notations for Question II.

1. _____

2. _____

IV. Draw the original polygon.

1. 

2. 

Remember:

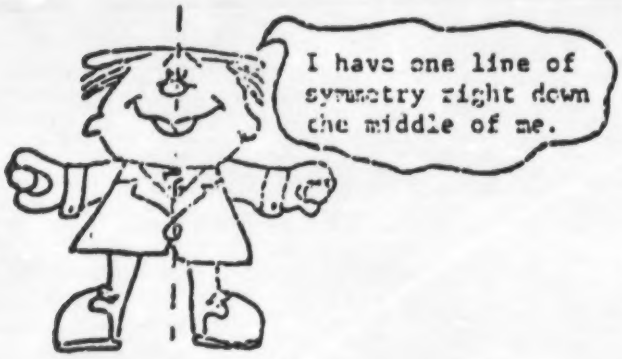
Leave enough room to slide your tracing in the proper direction.

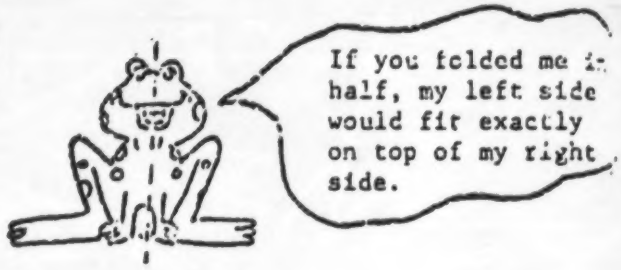
A SLIDE NEEDS:

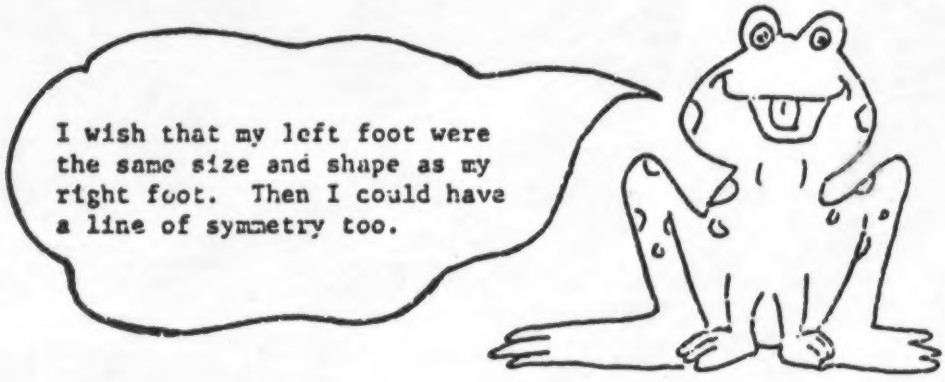
1. An original
2. A slide arrow or notation
3. An image

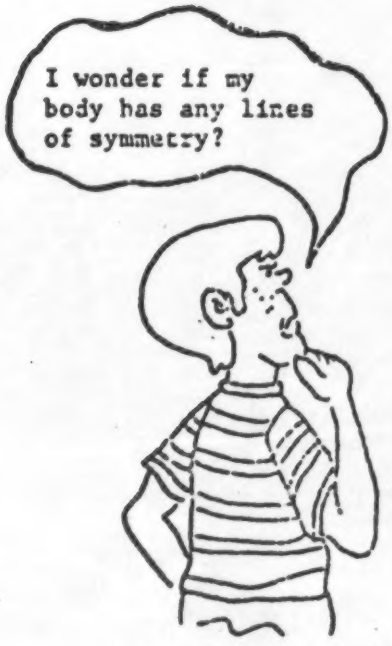
Geometry Unit

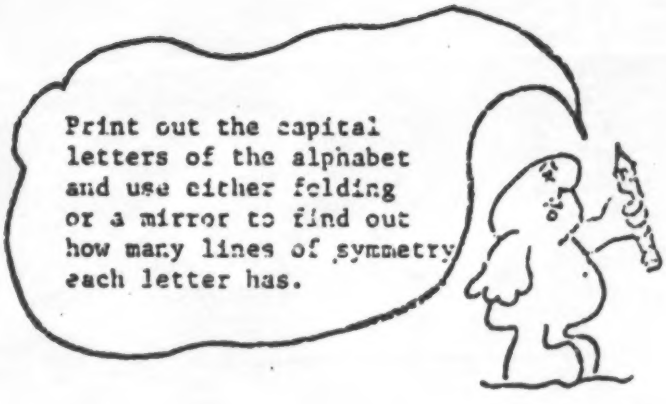
EXERCISES: **SYMMETRY** OBJECTIVE NO. 3







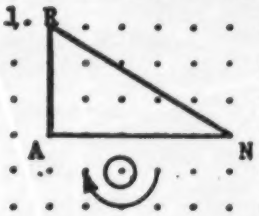


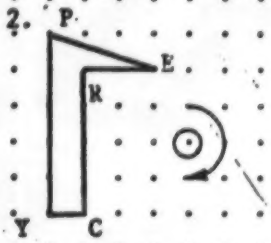

Print out the capital letters of the alphabet and use either folding or a mirror to find out how many lines of symmetry each letter has.

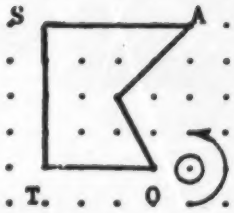
Geometry Unit

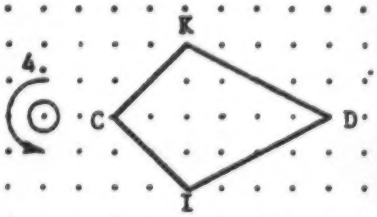
EXERCISES: **ROTATIONS** OBJECTIVE NO. 9

I. Draw the turn image for each figure below. Remember to label your image correctly.

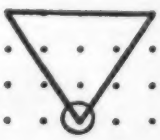
1. 

2. 

3. 

4. 

II. Draw a half-turn image for each of the following:

1. 

2.

3.

III. Describe the image you would obtain for 2(c) above if you turned the original 1/2 turn followed by another 1/2 turn in the same direction? _____

_____

In opposite directions? _____

_____